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# THE AMERICAN PRACTITIONER

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# THE American Practitioner and News.

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"Certainly it is excellent discipline for an author to feel that he must say all he has to say in the fewest possible words, or his reader is sure to skip them; and in the plainest possible words, or his reader will certainly misunderstand them. Generally, also, a downright fact may be told in a plain way; and we want downright facts at present more than anything else."  
—RUSKIN.

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LEE KAHN, M. D. EDITOR IN CHIEF.

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## Original Articles

### INDICATIONS FOR TONSILLECTOMY.\*

WM. C. WHITE, M. D.,  
Louisville, Ky.

---

This is a subject that has caused more dissension of opinions in the last few years than any one subject in medicine, but one point all are agreed upon, and that is, any diseased tonsil should be removed. So it narrows down as to when a tonsil is diseased—if it has a function, what is this function, and when does its functions cease. It is my belief that with the rarest exception whenever the tonsil requires surgical interference enucleation should be the procedure and consequently, whatever I may say of pathologic conditions in the tonsil itself, in its immediate neighborhood and in the system in general, it will be understood that I consider radical removal of the tonsil is required to improve these conditions. The subject of the pathology of the tonsil with special reference to its causing not only local and regional disturbances, but also general manifestations has been so thoroughly discussed in the past two or three years, that I can add but little that is new, and only confirm observations made by others.

---

\*Read before the Clifton Medical Society.

The most recent text books only give from one to three paragraphs on the tonsils, and I have been compelled to get what I could from recent articles on the subject. E. Barth in his recent article on physiology says, that histologically it consists of adenoid tissue and it must be concluded that its function is similar to the lymph gland. Two important functions of the lymph glands are to act as filters and to manufacture white blood cells. The same functions will be accorded the tonsils if it had not been discovered that only lymphocytes emigrate from the tonsil, which renders a modification of this theory, and he seems to think that the lymph stream flowing out may mechanically wash off some germs. The theory that the tonsil secreted a digestive ferment has failed to be proven.

Wilson believes that tonsils have a definite function in early infancy, namely, to protect the infant from taking germs into the stomach when the gastric fluids are not sufficiently developed to protect the body. He thinks in the tonsils we have part of a ring of follicular tissue which surround the upper part of the alimentary canal at a point, which from its location and structure, is very open to infection.

Good and Sheedy think from their extensive investigation that the tonsils fulfill their function in early infancy and should not be removed before the fourth year.

Ashhursts think they have an eliminative action in early infancy and places the time of their removal at about three years.

These authorities that I have quoted, and they are authorities, as you will see, nearly all place the function of the tonsil in the first few years of life.

Now for the absolute indication for their removal. Beck of Chicago gives the following: Chronic tonsillitis, quinsy, any malignant condition of the tonsil, these are the local conditions. The regional conditions are chronic pharyngitis, tubal catarrh with associated middle ear disease, enlarged glands of the neck, apical tuberculosis, bronchitis in children. The general systemic conditions are rheumatism with its complication and sequelæ, as endocarditis, myocarditis, arthritis, pleurisy, and so-called muscular rheumatism, blood changes, as chronic septicemia and secondary anemias, and changes in special organs, as episcleritis and phlyctenular.

Now as to the character of tonsil that is the most dangerous to the patient. The large pedunculated tonsil that hangs out into



the throat in plain view is not dangerous from an infective standpoint. It may interfere mechanically with the patient's speech, deglutition and respiration, but the tonsil that is dangerous to the patient's general health is the small submerged variety that is scarcely visible in the fauces. It is from this variety that you will have bad effects on the patient's general health.

Personally, I believe every tonsil that shows in the fauces after the child is six years of age should be removed. I know that this will start a howl and I am also aware that the average laryngologist is not so radical, but gentlemen, when you consider this gland that has ceased functioning in a region so richly supplied with blood and lymph; in a region where all of our food passes, and in a cavity which in health has the proverbial fifty-seven varieties of micro-organisms according to Mueller; this gland that is a natural incubator, being supplied with the requisite amount of heat and moisture, and which, if taken between your fingers and squeezed, will exude a cheesy, foul-smelling material—this same material when injected into a guinea pig will develop tuberculosis in fourteen out of twenty-one injections, and the remaining seven go through a severe septic condition and possibly die—I repeat, that when this occurs from a tonsil that is apparently normal, it makes you suspicious of the entire tonsil tribe.

My views of the result of tonsillectomy may appear excessively enthusiastic, and perhaps they are; at the same time I must insist that I have mentioned only facts based on actual cases. Before closing I should like to present a theory as advanced by Shurley, as to the raising of the opsonic index of the blood to all infections when the tonsils are enucleated. If for instance there exists some pathological condition of the body near to or distant from a tonsil which refuses to yield to the treatment applied to the said condition, if there exists merely a lack of healing power most probably due to the constant absorption of toxic matter from the diseased tonsil, and if this toxic absorbent is done away with by the complete enucleation of the tonsil and the pathologic condition heals, is it not reasonable to assume that the drain on the system has thus been stopped and the blood given a chance to become powerful enough to cure the disease in question because of the enucleation of the tonsil? Shurley's theory to my mind is very plausible, as is borne out by the investigation of Shurer, who has found decided improvement in the blood of the patient after removal of even a very

small tonsil, that has apparently not given the patient any trouble whatsoever. It is permissible to believe with Bordley, therefore, that these glands in early infancy act as governors over the system of ductless glands, and possess a protective power over the organs of the system. We have frequent clinical demonstrations of the relations and association of disturbed conditions simultaneously in the tonsils, the thymus, and the thyroids. We are all familiar with these conditions in the so-called status lymphaticus and sudden death. Numerous examples are on record of the thyroid gland, together with the faucial tonsils, which hypertrophy subsides on removal of the tonsils. Three of the prominent causes of exophthalmic goiter are tonsillitis, quinsy, and scarlet fever, all of which greatly disturb the normal function of the tonsil. It is my experience and belief and that of others that normal tonsils which produce no symptoms should be left alone in early infancy, but later, at the first symptom, either local or systemic, should be removed.

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#### PELLAGRA.\*

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ERNST H. KOCH, M. D.,  
Louisville, Ky.

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This disease, which was first described in the 18th Century by the Italians and named "*Pelle-agra*," meaning roughskin, was endemic in Italy and Egypt among the poorer classes. It existed also among most of the southern countries of Europe. It has been observed in Mexico, Brazil and Argentine Republic, and in the last two years has appeared in the southern part of the United States to an alarming extent.

*Causes*—The etiology of pellagra, in spite of much study and observation, is a matter of uncertainty, several theories having been advanced, the most strongly supported one being that due to ingestion of damaged corn or rather the absorption of toxins due to the action of some bacteria on corn having been subjected to dampness. However, various toxic substances have been abstracted from spoiled maize, but so far none can be said to be the specific cause of the disease. It is generally agreed, the condition is the result of absorption of toxins in the alimentary tract from bacteria that spend their force mostly on the nervous sys-

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\*Read before the West End Medical Society.

tem, the victim really dying of exhaustion. The spinal cord shows a postero-lateral sclerosis involving the columns of Gall and Burdach. The early cases show only changes in the posterior columns of the cord.

*Symptoms*—The onset of the disease is usually with digestive disturbances—diarrhea, tenesmus and abdominal pain and very soon an erythematous roughness of the skin, symmetrical dark red or brown in color not unlike a tan or sunburn, and at times infected with pus under the skin. After several days the superficial area of skin peels off and another layer, more normal is found to have formed beneath it. This dermatitis is usually confined to the hands and feet or to the face, especially the parts exposed to the sunlight. The lesion may “burn” but rarely itches. This eruption usually appears when the diarrhea begins, but this may not be for two or three years after some of the nervous symptoms have been present. The skin of the nose and face may be rough as if same were in the skin.

The early nervous symptoms embrace a number of interesting conditions. Insomnia is a common symptom, others have delusional insanities, dreads and fears without apparent cause, many observers report a numbness and paresthesia in the hands and feet as a result of which these patients can endure the long static sparks. Many have the sensation of being pulled one-sided or having traction made on one set of muscles. Melancholia and insanity are later nervous symptoms. The mouth is sore and red, there being often a very severe stomatitis with salivation. The diarrhea is characterized by very offensive stools. The lower limbs become extremely rigid with increased tendon jerks and the extensor plantar response. There is some loss of control of the bowel and bladder. Pain and tenderness over the vertebral column is often present. The burning pains of the hands and feet are often very severe. The manical or the more commonly melancholic mental condition often necessitates confinement in an asylum. The course of the disease is as a rule chronic, lasting fifteen or twenty years, but Osler mentioning an intensely acute variety, occasionally seen, known as “Typhus Pellagrosus.”

In 1907 an epidemic in an insane hospital in one of our southern states shows a mortality of 64% of this variety. Pellagra is not considered as fatal as it formerly was, as reports from some of our southern physicians show some good recoveries.



*Treatment*—In the management of this condition prophylaxis is more important than drug administration. In Italy, on account of the difficulty in reaching the lower classes, where the disease is more often found, they have scattered through the infected regions hospitals, where these cases can be isolated and treated. The character and condition of the food should receive attention. Different lines of treatment have been mapped out with drugs, depending to a certain extent, on the theory of the causation. One set of physicians have used petroleum oil with hypophosphites of lime and soda over long periods with marked effect. Various purgatives are given at intervals during the course of the disease, assisting nature to rid the bowel and prevents the absorption of this, without poison. Castor oil has proven the most useful agent for this purpose. On the other hand the diarrhea often exhausts the patient and calls for treatment. Bismuth mixtures with sulphocarbolates has been used with most success. However, it has been found that where the bowels were checked to less than three or four movements during the twenty-four hours the nervous symptoms are aggravated. General support to the system is indicated. Iron and the iodides prove better than arsenic. The concensus of opinion among all authorities is that measures that tend to prevent formation and absorption of toxic products, and those that favor elimination with tonic and alteratives and special lines of treatment for the nervous complications, offer the best means for the management of this condition until the specific cause is ascertained.

## Selected Articles

### ON THE ORIGIN AND NATURE OF GRAVES'S DISEASE.

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It is the purpose of this paper to inquire into the nature of Graves's disease. That there is wanting an agreement as to its nature is best shown by opinions held by leading authorities who have written formal books on medicine and surgery. This disease has been variously regarded as an infection, a form of goitre, a neurosis, and a disease of metabolism. Among those

who would include this disease in a particular group, there is lack of agreement as to why it should be so classified; for instance, if in the infection group one author may regard it as a sequel of some acute infection as tonsillitis, typhoid, or acute exanthemata, while others hold that it is itself primarily due to a particular infection such as specific infection in certain drinking waters; among those who would classify it in the goitre group, some would do so because there is an excessive secretion of the thyroid, others because there is a deficiency, and still others because there is a pathologic alteration in the nature of its secretion; among those who adhere to its classification as a disease of metabolism, some do so because they believe there is a pathologic alteration in certain internal secretions such as the thyroid, the pancreas, and the adrenals. Among them are those who believe it should be classified as a disease of the nervous system, some believe the lesion lies in the central nervous system, others believe it involves the sympathetic. Such marked differences of opinion among authorities point to this disease as being unique in its versatility and its elusiveness. In the matter of its treatment there is equally lacking uniformity of opinion. Dr. Marine tells me that cases have been reported as cured by 237 different remedies. There is perhaps no other disease in which so wide a range of diverse opinion as to its nature and treatment is held. As to its gross pathology there is practical agreement. Lesions are found in cells of all parts of the brain—most marked in the cerebrum and cerebellum, less marked in the medulla and little or no change in the spinal cord. The heart muscle, the thyroid, the adrenal, the pancreas, the liver, the lymphatics, the thymus, the spleen, the skeletal muscles, the skin, the bony skeleton, the teeth and the hair, all show pathologic modifications of varying degrees according to the duration and the severity of the disease.

From the foregoing it is obvious that whatever the cause, it is a malady of protean manifestations.

Now there is no difference of opinion as to how to classify a fracture, typhoid fever, or a fibroid tumor. Diseases are assigned to classes they most resemble. Does exophthalmic goitre closely resemble any disease? I know of none. Does it resemble so closely that it might be related to any normal processes? Clinicians have always remarked upon its resemblance to the emotions, especially that of fear. We will compare the phenomena of Graves's disease and those of fear.

Graves's disease and fear have in common the following phenomena: increased heart beat, increased respiration, rising temperature, muscular tremors, protruding eyes, loss in weight. Cannon has found an increased amount of adrenalin in the blood in fear and Frankel in Graves's disease; increased blood pressure—muscular weakness; digestive disturbances; impaired nervous control; hypersusceptibility to stimuli; in protracted intense fear the brain cells show marked physical changes; in Graves's disease analogous changes are seen.

The phenomena of Graves's disease and the emotions present a striking resemblance. The questions then arise, what is the origin of the emotions? What is the purpose of the various phenomena? and may Graves's disease and the emotions have a common origin?

It may be assumed that the same principle underlies the emotions of fear and anger, and sexual love, viz., self-preservation and procreation. I shall, therefore, limit my discussion mainly to the strongest emotion, viz., fear. I believe that it can be shown that the emotion of fear can be elicited only in animals that utilize a motor mechanism in defense against danger or escape from it. The defense of the skunk is a diabolic odor which repels its gross enemies. The skunk has no adequate equipment for defense or escape by muscular exertion. The skunk has little or no fear. Certain species of snakes are protected by venom. They possess no other adequate means of defense or escape. They show no fear. Animals having mechanical protection, as the turtle and porcupine have little fear. Other animals because of their prowess have but few fears. The lion, the grizzly bear and the elephant are examples. It is obvious that fear is not universal. The emotion of fear, as I believe, is felt only in those animals whose self-preservation is dependent upon the uncertain adequacy of their power of muscular exertion either in defense or in flight.

What are the principal phenomena of fear? They are palpitation of the heart, acceleration of the rate and alteration of the rhythm of the respiration, cold sweat, rise in body temperature, tremor, pallor, erection of the hair, increase of certain internal secretions, suspension of the principal functions of digestion, muscular relaxation, protrusion of the eyes; the function of the brain is wholly suspended except that which relates to the self-protective response to the object feared.

Neither the brain nor any other organ of the body can respond to any other lesser stimulus during the dominance of fear.

From the foregoing it would appear that under the influence of fear, most, perhaps all of the organs of the body, are divided sharply into two classes: First, those that are stimulated, and second, those that are inhibited. Those that are stimulated are the entire muscular system, vasomotor and locomotor systems, the senses of perception, the respiration, the mechanism for erecting the hair, the sweat glands, the thyroid gland, the adrenal gland (Cannon), and the special senses. On the other hand, the digestive and procreative functions are inhibited. What is the significance of this grouping? So far as we know the organs stimulated increase the efficiency of the animal for fight or for flight. It is through skeletal muscles that the physical attack or escape is effected—these muscles alone energize the claws, the teeth, the hoofs, and the means for fight or flight. The increased action of the muscles of the heart and the blood vessels increase the efficiency of the circulation; the secretion of the adrenal gland causes a rise in the blood pressure; the increased action of the thyroid gland causes an increased metabolic activity; there is evidence that glycogen is actively called out, it being the most immediately available substance for the production of energy; the increased activity of the respiration is needed to supply the greater requirements of oxygen and the elimination of the increased amount of waste products; the dilation of the nostrils affords a freer intake of air; the increased activity of the sweat glands is needed to regulate the rising temperature of the body from the increasing metabolism. The activity of all of the organs of perception, sight, hearing, smell, are heightened for the purpose of perceiving the more accurately the danger. It could not be a mere coincidence that the organs and the tissues that are stimulated in the emotion of fear are precisely those that are actually utilized in the perception of danger and in a physical struggle for self-preservation. Among the organs inhibited are those that have mainly to do with digestion and procreation.

Are there any other organs stimulated by fear except those that can or do assist in making a defensive struggle? I know of none. On the other hand, if an animal could dispense with his bulky digestive organs, whose functions are suspended by fear, if he could, so to speak, clear his decks for battle, it would be advantageous. Although the marvelous versa-

tility of natural selection apparently could devise no means of affording this advantage, it did the next best thing—it turned off the nerve current and saved the vital force these non-combatants ordinarily consume in the performance of their functions. Whatever the origin of fear is, its phenomena are due to a stimulation of all of the organs and tissues that add to the efficiency of the physical struggle for self-preservation through the motor mechanism and an inhibition of the function of the leading organs that do not participate—the non-combatants, so to speak. Fear arose from injury. By the slow process of a vast empiricism nature evolved the wonderful defensive motor mechanism of many animals and of man. Now the stimulation of this mechanism leading to a physical struggle is action; and the stimulation of this mechanism without action is emotion.

We may say then that fear is a phylogenetic fight or flight. On this hypothesis we recognize no reverberation through the body as suggested by James, but all of the organs and parts of the entire animal are integrated, connected up or correlated, for self-preservation by activity of its motor mechanism. We fear not in our hearts alone, not in our brain alone, not in our viscera alone, but we fear in every organ and tissue of our body—each organ or tissue is stimulated or inhibited according to its help or hindrance in the physical struggle for existence. In thus playing all or most of the nerve force on the nerve muscular mechanism for defense alone, a greater physical power is developed. Hence, it is that animals or men under the stimulus of fear may be able to perform preternatural feats of strength. Then, too, for the same reason the exhaustion following fear will be the greater, as the powerful stimulus of fear drains the cup of nervous energy, though no visible action may result. An animal under the stimulus of fear may be likened to an automobile with the clutch thrown out but whose engine is racing at top speed. The gasoline is being consumed, the machinery is being worn, but the machine as a whole does not move, though the power of its engine may cause it to tremble. Applying this conception to human beings today, it must be borne in mind that man has not been presented with any new organs to meet the requirements of the present state of civilization—indeed not only does he possess the same type of organs as his savage fellows, but also the same type of organs possessed by the lower animals. In fact, the present status of civilization of man is now operated with



the primary equipment of brutish organs. Contrasted with the entire duration of organic evolution, man has come down from his aboreal abode and resumed his new role of increased domination over the physical world but a moment ago. And now sitting at his desk in command of a complicated machinery of civilization when, for example, he fears a business crash it is in the terms of his ancestral physical battle in the struggle for existence. He cannot fear intellectually, he cannot fear dispassionately, he fears with all his organs, and the same organs are stimulated and the same organs are inhibited as if instead of being a battle of credits, of position, of honor, it were a physical battle with teeth and claws. Whether the cause of acute fear is moral, financial, social, or stage fright, the heart beats wildly, the respirations are accelerated, perspiration is increased, there is pallor, trembling, indigestion, and so forth. The phenomena are those of physical exertion or self-defense or escape. There is not one group of phenomena which expresses the acute fear of the trusted official who suddenly and unexpectedly faces the probability of the penitentiary; another for a patient who unexpectedly finds that he has a cancer; or for the hunter when he shoots his first big game; or for the passenger in a railway wreck; or the animal in the wilds confronting a formidable enemy. Nature has but one means of response, and whatever the cause, the phenomena are always the same—always physical. All forms of fear as it seems to me express themselves in similar terms of ancestral contests, and on this law dominate the various organs and parts of the body. Anger and fear express opposite states. Fear expresses the evidence of a strong desire to escape from danger; anger a strong desire to physically attack and vanquish opposition. This hypothesis is strongly supported by the outward expression of fear and anger. Animals with no weapons for attack show no anger; animals that have no means of self-defense by muscular action, show no fear. When the business man is conducting a struggle for existence against his rivals, and when the contest is at its height he may clench his fists, pound the table, perhaps show his teeth, and he may exhibit every expression of physical combat. Fixing the jaw and showing the teeth in anger merely emphasizes the remarkable tenacity of phylogeny. Although the development of the wonderful canines of our progenitors, the ancestral use of the teeth for attack and defense is still attested in the display of anger. In

all stations of life difference of opinion may lead to argument, and argument to physical combat—even to the point of killing.

Physical violence of the savage and the brute still lies surprisingly near the surface. Although there is not convincing proof, still there is evidence that the effect of the stimulus of fear upon the body without physical activity is more injurious than the effect of fear with physical activity. It is well known that the soldier lying under fire awaiting in vain for orders to charge suffers more than the soldier that flings himself into the fray; that a wild animal in an open chase against capture suffers less than when cowering in captivity.

The civilized portion of the human race is indeed in a state of auto captivity. The child has no desire to conform to the conventions, on the contrary, he naturally prefers to wear no clothes, no shoes, to climb, to run, to play and to be dirty—to fight and hide and hunt and fish and kill according to the design of his mind and body in the course of his evolution. It is such a commonplace fact that we scarcely realize the immense significance of the difficulty of the training of our children. For some twenty years the mother, the father, brothers and sisters, friends, teachers, the community at large is engaged in the difficult task of training and taming a child to the conventions and the work society expects of him. His trainers were once just as untrained. Even after this long period of taming and training, this natural savage may in the end break out in many savage ways. The wild animals and primitive man have but little difficulty in bringing up their young in the ways designed by nature for them, but each generation of man must spend a prodigious amount of time in training its young for the obligations and duties of civilized life. Then in time they do the same for the generation to follow—in other words, man really exists in a state of auto-captivity, and this is a fact of great importance. As we shall see there is much restraint—little action—much emotion. An unexpressed slumbering emotion is measurably relieved by action. It is probable that the various energizing substances needful in physical combat, such as the secretions of the thyroid, the adrenals, glycogen, etc., but which are not consumed in action may, if frequently repeated, cause physical injury to the body. That the brain is definitely influenced, even damaged, by fear has been proved by the following experiments:

Rabbits were frightened by a dog but not chased or injured. After various periods of time the rabbits were killed and their brain cells compared with the normal. Widespread changes were seen. The principal gross phenomena expressed by the rabbit were rapid heart, accelerated respiration, prostration, tremors, and a rise in temperature.

The dog showed similar phenomena—excepting instead of muscular relaxation as in the rabbit the dog showed aggressive muscular action. Both the dog and the rabbit were exhausted, and although the dog exerted himself actively and the rabbit remained physically passive, the rabbit was much more exhausted than the dog.

Another observation was made upon the brain of a fox chased for two hours by members of a hunt-club, then finally overtaken by the hounds and killed. The brain cells of this fox as compared with those of a normal fox showed extensive physical changes.

Man is capable of only such actions as his ancestors have through evolution—that is phylogeny—made possible; and only by association; when an individual experiences a contact with his environment which in his phylogeny would have led to action, but in him no physical action ensues though there is widespread stimulation in preparation for action—this is emotion.

The effect of repeated stimulations of the emotions without action is seen in the destructive phenomena of worry, of fear, and in lesser degree, though analogous in principle, are the phenomena of love. In the case of a young woman with indigestion, insomnia, low spirits, loss of weight and general loss of vitality and interest, who would venture to assert, in the absence of a history, whether she was the victim—of worry or a disappointment in love. Now in the history of cases of Graves's disease there is again and again given voluntarily or as an admission an account of some strong emotional stimulant—some deeply disturbing fact which thrusts itself upon the consciousness instantly on awakening—rather it awakens its victim in the course of the night and the early morning—some dominating emotional stimulant which absorbs the attention during the day and disturbs the sleep in the night; the ever recurrence of this evil stimulus is attended by an increase of all the emotional phenomena, so that gradually, indeed imperceptibly the stimulus remains constant—the eyes protrude, the thyroid is enlarged

and full-blown Graves's disease is seen—a disease primarily involving the emotions.

The following is typical. A broker up to the panic of 1907 was in his usual health. During this panic his fortune and that of others was for almost a year in jeopardy, finally ending in failure. During this heavy strain he became increasingly more nervous and imperceptibly there appeared a pulsating enlargement of the thyroid gland, an increased prominence of the eyes, marked increase in perspiration, even profuse sweating, palpitation of the heart, increased respiration with frequent sighing, increase in blood pressure; there was tremor of many muscles, rapid loss of weight and strength; frequent gastrointestinal disturbances, loss of normal control of his emotions, and marked impairment of his mental faculties. He was as completely broken in health as in fortune. These phenomena resemble closely those of fear and followed in the wake of a fear strain. In young women this disease often follows in the wake of a disappointment in love; in women, too, it frequently follows in the wake of an illness of a child or of a parent in which the double strain of worry and of constant care is present. Since such strains usually fall heaviest upon woman, they are the most frequent victims.

Now, whatever the exciting cause of exophthalmic goitre, whether unusual business worry, disappointment in love, a tragedy, or the illness of a loved one, the symptoms are alike and closely resemble the phenomena of one of the great primitive emotions. Now, how could disappointment in love play a role in the causation of Graves's disease? If the hypothesis presented for the explanation of the genesis and the phenomena of fear is correct then it would hold for the emotion of love. If fear is a phylogenetic physical defense or escape, but without resulting in muscular action, then love is a phylogenetic conglutination without physical action. The quickened pulse, the leaping heart, the accelerated respiration, the sighing, the glowing eye, the crimson cheek, and many other phenomena are merely phylogenetic recapitulations of ancestral sexual acts.

The thyroid gland is believed to participate in such physical activities. Hence, it could well follow that the disappointed maiden who is integrated for a youth will at every thought of him be subjected by phylogenetic association to a specific stimulation analogous to that which attended the ancestral consummation. A happy marriage has many times been followed by

a cure of the exophthalmic goitre which appeared in the wake of such an experience. The victims of Graves's disease present a counterpart of emotional exhaustion. The emotions in Graves's disease are abnormally acute, as illustrated by personal observation in several victims of this disease of death from fear alone. Now, whatever the cause of this disease of the emotions, the symptoms of Graves's disease are the same; just as in fear the phenomena are the same, whatever the cause.

In Graves's disease there seems to be a composite picture of an intense expression of the great primitive emotions. Now if Graves's disease is a disease of the emotions, by what process is the constant flow of stimulation of this complicated mechanism supplied—a stimulation that may be constantly present for months and years? The following facts suggest that the thyroid gland plays the leading role—in suitable cases of Graves's disease if the activity of the thyroid gland is sufficiently decreased the phenomena of the disease are immediately diminished, and in favorable cases the patient is restored to approximately the normal condition. The heart slows, the respiration falls, the restlessness diminishes, digestive disturbances disappear, tremors decrease, there is a rapid increase in the body weight, and the patient gradually resumes his normal state. On the other hand, if to a normal individual extract of the thyroid gland is administered in excessive dosage over a period of time, there will develop nervousness, palpitation of the heart, sweatings, loss of weight, slight protrusion of the eyes, indigestion, in short there will be produced, artificially most of the phenomena of Graves's disease and of the strong emotions. On withholding the thyroid extract these phenomena may disappear. I use the qualifying word "may," because I have seen a number of cases of excessive administration of thyroid extract end in real Graves's disease. On the other hand, when there is too little or no thyroid gland the individual becomes dull and stupid and emotionless—though he may be irritable.

Hence, we see that the phenomena of the emotions may be, within certain limits, increased, or may be diminished, or abolished by increasing, diminishing or totally removing the thyroid gland.

Graves's disease may be increased by giving thyroid extract, and by any of the excitants of the emotions. It may be diminished by removing a part of the gland, or by tying its blood supply, or by complete rest. Finally in Graves's disease there



is at some stage an increase in the size and in the number of the secreting cells.

The phylogenetic identity of physical injury and fear, tells us why psychic shock is identical with traumatic shock; why in cases of exophthalmic goitre the psychic stimuli increase the phenomena of Graves's disease, precisely the same as physical stimuli. Why, the fear of operation, which is a noci-perception, causes the same exacerbation as the physical cutting of the tissue in the course of operation, which is a form of noci-perception; each is a self-protective response which means a stimulation of the hypersusceptible motor, or emotional mechanism. In Graves's disease there seems to be established a pathologic stimulation of the entire motor mechanism of the human body. Its phenomena resemble continuous fear—or at least a continuous primary stimulation of the entire motor mechanism of man. The nervous system alone is capable of initiating such a total motor excitation, but there is strong reason to believe that its continuation is effected through the agency of secondary influences, that of activating ductless glands. The thyroid gland is the only gland whose secretion, wholly independent of the inauguration by the nervous system, is capable of equally stimulating the entire motor mechanism. By motor mechanism is meant the entire complicated machinery used in the production of action. The role of the thyroid is that of a great activator. But the action of the thyroid, like the action of all the organs of the body, is inaugurated either directly or indirectly by the nervous system. Environment, as Sherrington has said, drives the nervous system and the nervous system drives the other organs of the body.

The question which next confronts us in a given case is this, what has caused the inauguration of the thyroid activity and what impels its continuation? Let us consider some of the conditions present and which seem to serve as exciting causes. It may follow an acute infection such as tonsillitis or in the wake of an infectious disease as measles, typhoid, etc.; it may follow large doses of iodine; administration of excessive dose of thyroid extract, especially if there is present a colloid goitre; overwork, especially in adolescence; worry; psychic shock and emotional disturbances. All of these exciting causes cause a lowering of the threshold of the nervous system to stimuli and a diminution of the control function of the nervous system. This statement is based on the clinical observation



of hyper-excitability and the demonstration of actual lesions of the brain cells. Therefore, the environmental stimuli will be given an increased activation of the brain, which in turn will drive to greater activity the various organs of the body.

If in a given case the thyroid factor of safety is already narrow the loss of the protective influence of the brain and the increased stimulation would subject the thyroid gland to abnormal stimulation. This stimulation in turn would increase the output of the actuating thyroid secretion, the effect of which would be to further increase the excitability of the brain. The precise means by which this inter-action is continued, i. e., the physical chemical process by which it is wrought is unknown. But it is known that this pathologic inter-action may be broken at either end, viz., by restoring the normal action of the brain cells, or by diminishing the output of thyroid secretions. If a case of Graves's disease can be so managed as to secure sufficient rest, secure a minimum of environmental stimuli the disease may be arrested or cured. It is too frequently impossible to disentangle this explosive vicious circle, and the mere effort becomes an exciting cause. If associative memory could enter into the state of actual hibernation one might expect many cases to be cured, but unhappily the knowledge of the gravity of the disease itself becomes one of the psychic excitants of the disease, the entanglement becomes frequently hopeless excepting by the more radical excision.

Now the mere proposal to perform an operation becomes also an unfavorable excitation; this excitation may so much increase the disease that the patient is even less able than before to bring herself to agree to such treatment. On all sides this disease is beset by vicious circles—by pathologic inter-action. The ideal plan of approach, at least in my experience, is to assure the patient that her's is a curable malady, that it can best be treated in a hospital and that non-operative measures will first be tried, then, if this proves inadequate, a simple operation will be done; that it will be best to leave this decision wholly to the judgment of her medical advisers, and that since even the discussion of operation is both unpleasant and injurious it would be best not to open this subject again. The patient usually gladly consents to leaving the whole matter to the judgment of the physician and the way is then opened to the most effective treatment which in my judgment has ever

been proposed, viz., ligation or excision on the new principle of a noci-association.

The anesthetist—a nurse especially trained—gives fictitious inhalations under the precise conditions of regular anesthesia and under the guise of “inhalations” supposed to be a part of the general treatment. Every morning the patient is given a sterile hypodermic. On the morning of the operation which is performed in one of the favorable phases of the numerous cycles of the course of the disease, the hypodermic will contain morphine and scopolamine, and instead of an oxygen “inhalation” nitrous oxide is given and the patient falls to sleep in her bed without the slightest knowledge or suspicion that the first step of an operation has been taken. The patient is then transported anesthetized to the operating-room, where the operative field is prepared. Up to this point the patient’s brain, hence the remainder of the body, is in a negative state, and this is just one-half of this specialized operation; the other half is this, any injury of any sensitive part of the body, though the patient is under inhalation anesthesia excites the brain, and hence through the brain all of the motor mechanism, especially the thyroid. Inhalation anesthesia is but a thin veneer, and although the patient is unconscious the afferent impulses set up by the operation reach the brain apparently as readily as if no anesthesia was given.

This is the source of the hyperthyroidism so-called that constitutes the greatest danger of the operation. How may this be avoided? It may be wholly avoided by the use of complete local anesthesia by the use of novocain throughout the entire operation, just as completely as if the patient had received no general anesthesia. The patient having received no psychic stimulation arising from knowledge of the imminence of the operation, and none in being anesthetized, and finally no afferent impulse having reached the brain from the field of operation, the patient is in a state best designated by coining a new word, viz., anoci-association, a state in which not a single nocuous or harmful impulse has reached the brain. The result of operation performed by this method is scarcely credible, the condition of the patient at the end of the operation is precisely the same as when in bed the day before. Indeed this is the standard and unless the result equals this, there has been an error in the technique.

By this technique the scope of the operation is greatly

increased and the gland can be safely removed from any patient whose condition will permit the sudden withdrawal of so much gland tissue. Experience has taught us that there is a limit in this direction, and until we can better judge how to mitigate this sudden loss, it is best to merely ligate the poles of the most serious cases. This operation is done in bed without the patient's knowledge, and requires only a few minutes.

In any case the operation is but a means to the end, viz., the raising of the threshold of environmental stimuli to the normal and re-establishment of normal control of the brain. The thyroid and the other parts of the body-wide motor machine will reach normally acceptable rest. Travel, diversion, nature, all are helpful, the operation serving to break the pathologic chain at one of its strongest links. These patients should be literally taken by the hand and led away from mankind through the flowery paths of ease and pleasure back to the haven of health. The only question that remains is the crux of the whole question, and that is: Does operation cure?—*The Medical Herald*.

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## PREVENTIVE MEDICINE.

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Preventive medicine employs all measures which are serviceable in warding off disease. The term preventive medicine is applicable therefore to all procedures which have for their object the limitation and prevention of the activities of the disease producing agents. The preventive measures are applied in a number of different ways. Some of the more important measures are the following:

1. The limitation, or prevention, of the dissemination of the germs of disease by confining the infected persons in such a way as to prevent access to them, of those who are not immune to the disease, or as in malaria, yellow fever, and some other diseases, the prevention of access to the patient of the insect carriers of the specific organism.

2. The destruction of the specific organisms outside the body, either with chemical substances or physical agents which are destructive to the germs of disease.

3. The use of immune sera to fortify the individual against infection by supplying the specific antibodies to assist the natural defensive powers in overcoming the invading organisms as fast as they gain access to the body.

4. The injection of vaccines, in the form of dead or living attenuated organisms, to bring about the development of specific antibodies in the individual.

5. The use of chemotherapeutic agents to aid the body in overcoming the infective organisms as fast as they gain access to it.

6. The employment of chemical substances, or physical and biological agencies, in the purification of water, milk, and sewage.

#### ISOLATION AND DISINFECTION.

Isolation of the infected individual has served a useful purpose for centuries and must be practised in each instance if we desire to limit the incidence of infectious diseases. Three difficulties confront us in actual practice in our endeavor to carry out isolation. The first difficulty is that of recognizing mild attacks of the disease; the second is the uncertainty as to the proper length of time each particular patient should remain isolated; and, third, the great difficulty effectively to isolate a patient in the home so as to be certain that the infecting organisms are not carried beyond the isolation area. This latter difficulty, no doubt, frequently is responsible for the failure to limit the disease to the primary location.

Isolation is at times defeated by the physicians and other attendants in failing to exercise proper care to prevent their bodies and clothing from becoming soiled with infectious material. It is not an exceptional occurrence for physicians, who disregard proper precautionary measures, to carry infectious organisms to other families visited immediately after attending a patient suffering from scarlet fever or measles.

In diseases like malaria, yellow fever, relapsing fever, and sleeping sickness, where it is well known that the infection is disseminated solely through the bite of an infected insect, the isolation of the patient should be arranged in such a manner as to prevent access of noninfected insect carriers. It is possible to treat patients in general hospitals, when suffering with these diseases, without danger to the other patients or attendants, provided the insect carriers are rigidly excluded.

Isolation must always be supplemented by the use of disinfectants during the period of isolation and at the release of the patient. The former procedure is directly under the supervision of the attending physician. To be efficacious the process of disinfection requires careful oversight. The agents employed for the purpose of disinfection must be of known value, and must be brought into direct contact with the infected materials and held in contact in adequate concentration and for sufficient time to accomplish the destruction of the organisms.

Laboratory experiments have taught us which agents are most trustworthy for this purpose. Many chemical compounds are on the market for which the manufacturers assert great disinfective powers, but which fail to support these assertions when they are tested in the laboratory. The demand of the United States Government that all disinfectants sold shall be accompanied by a statement as to their strength, as expressed in the carbolic acid coefficient, will serve to remove spurious and inefficient compounds and substances from the market. It must be remembered that the determination of the carbolic acid coefficient of a disinfectant must be carried out in a reputable laboratory and according to standard methods.

Chapin and others have called in question the value of terminal disinfection. It is contended that terminal disinfection has no value commensurate with the trouble and cost of the procedure. However, in the light of trustworthy laboratory tests, it seems beyond doubt that the use of formaldehyde, either as a spray or even in the gaseous form, serves to kill test objects placed in rooms being disinfected. It appears to me very reckless, to say the least, to advocate the discontinuance of terminal disinfection, as it is more probable that the efficacy of the procedure has been brought into question because of failure properly to carry it into effect.

#### THE USE OF IMMUNE SERA.

Since the discovery of the preventive action of the antitoxic sera for diphtheria and tetanus, much sickness and suffering and many deaths have been prevented where prophylactic doses of antitoxines are employed before actual disease has developed. They serve in nearly every instance in preventing infection. The prophylactic value of tetanus antitoxine, following injuries that may possibly result in tetanus infection, has been demon-



strated very strikingly in the treatment of injuries received during fourth of July celebrations in recent years. The prophylactic use of antistreptococcus serum in persons in whom the development of streptococcus infection is feared, has occasionally given encouraging results. The principal defect of this latter serum, as shown by investigation, appears to be the rapid loss of the specific antibodies. None of the other immune sera appears to be of great service, either as curative or as preventive agents.

#### THE USE OF VACCINES.

The use of vaccines as preventive agents has given most favorable results. Using the term vaccine in a broad sense, we may include not only the virus employed to protect against smallpox, but agents of somewhat allied nature in that the infective organisms are employed in a modified state.

There is no preventive agent of greater protective power in warding off a specific disease than vaccine virus. It appears evident, from the results of investigations on this question, that vaccine virus is merely the virus of smallpox which has undergone a definite alteration in its infective and invasive powers, but not in its immunizing powers, by growth in the skin of bovines. This modification gives us a virus which no longer produces a generalized eruption, but merely a local sore at the point of inoculation, but brings about constitutional manifestations and immunity of a degree equal to that following infection by the unmodified organism. The principal difference between the immunity following vaccination and that following smallpox appears to consist in the shorter duration of the former.

The treatment of hydrophobia by the Pasteur method is, in all probability, dependent upon the active immunization induced by the virus before the infection has had an opportunity to develop. This is possible because of the low virulence and short period of incubation of the virus as employed in the Pasteur treatment. Under these circumstances it is possible, in most instances, to induce an active immunity in those bitten by rabid animals before the infection has had time to develop. The drying of the cord of rabbits infected with the fixed virus, if continued for a sufficient length of time, will lead to the death of the organism, but injections of cord in which the organism is dead are nevertheless capable of inducing the formation of protective



substances, and pave the way for the subsequent use of living virus. In reality, therefore, the Pasteur treatment of hydrophobia is preventive treatment.

Another of Pasteur's signal triumphs is the attenuation of the anthrax bacillus by cultivating it at a temperature several degrees above its optimum. By prolonging the cultivation of the anthrax bacillus at  $42^{\circ}$  to  $43^{\circ}$  C., while it is in the nonsporulating stage, it is possible to procure gradations in its infective power, ranging from the highly virulent strain, that kills cows and sheep, to a strain that is incapable of killing even a mouse. As the anthrax bacillus loses its virulence, it also loses its power of causing a general infection. The attenuated strains, or vaccines, remain localized at the point of inoculation, but lead to the development of immunity, which protects against the highly virulent strains.

While the use of anthrax vaccines is confined almost entirely to the immunization of domestic animals, it is, however, indirectly of great value to humanity, in that it is possible through the use of the vaccines to lessen the danger of anthrax infection in man.

The employment of living attenuated bacteria for the immunization of human beings dates from the use of attenuated cultures of the organism of Asiatic cholera by Haffkine. Since 1897, vaccination against cholera is carried out with dead cholera organisms.

Haffkine's fluid, which has been employed in the immunization of human beings against plague since 1892, is merely a dead culture of the plague organism. It was demonstrated by Frankel that injections into animals of dead bacteria gave rise to the development of antibodies of the same nature and in proportionate degree to those developed after the injection of non-fatal doses of living bacteria. The injection of dead bacteria is also safer than the injection of living bacteria, because there is no possibility for the multiplication of the bacteria in the animal's body, and hence an accurate dose is permissible. Following the demonstration by Frankel, the use of dead bacteria as vaccines received more attention.

The work of Sir A. E. Wright, in the immunization of soldiers in the British army against typhoid fever by the injection of dead bacilli, demonstrated the great value of this procedure and led to the adoption of this preventive measure in the armies of the United States and Germany with equally beneficial effects. The success of the inoculations of the soldiers in the maneuvers

camp in Texas during this summer has led to the promulgation of an order by the surgeon-general that all soldiers and civilians in the United States Army must be immunized against typhoid fever. The enormous saving of life and sickness in the army by immunization against typhoid fever will lead to the wider application of this preventive measure. Already the board of health of one State (Georgia) has made preparation to furnish typhoid vaccine to all physicians in the State who desire to employ it in the immunization of persons living in infected communities or who are obliged to come into close contact with typhoid fever patients.

I believe that the time is not far distant when we can more definitely render the carriers of the typhoid bacillus safe to the community by eradicating the organism from their biliary passages. The experimental evidence brought forth by Conradi, by Hailer, Rimpau and Ungermann, and by Bully of the value of rectal injections of chloroform into rabbits infected with the typhoid bacillus, makes one hopeful that we may soon discover a safe method of removing the bacillus from human carriers.

Typhoid fever has become almost a medical curiosity in communities once hotbeds of this disease, where the water supply has been purified by sand filtration or other measures. The prevalence of typhoid fever in army camps and in other places where large numbers of persons are brought into close contact with each other, has been reduced to the vanishing point by the systematic vaccination of all individuals.

The control of typhoid fever in large communities by the purification of water supplies and the regulation of the milk supply must be supplemented, however, by careful supervision of convalescents from this disease. The well known fact that convalescents may carry the typhoid bacillus for weeks and months, calls for supervision of the convalescent until such time as bacteriological examination demonstrates that he is no longer harboring the bacillus. This can be determined much more readily today than heretofore, because of the improvements in our methods of isolating the bacillus from urine and fæces.

In a similar way Lucas and Amos have succeeded in immunizing children exposed to dysentery infection by injecting a vaccine consisting of dead cultures of the dysentery bacillus. In institutions where large numbers of young children are being cared for, this preventive measure will be of great value in the saving of life.

The use of dysentery vaccine for the protection of individuals exposed to this infection, has demonstrated that in dysentery this mode of protection is of equal value to the protection seen in typhoid fever.

The control of cholera and of epidemic dysentery may be accomplished in the same way as the control of typhoid fever, that is, by the purification of the water supply and the systematic vaccination of all persons living in close contact with each other.

The probability of cholera gaining a foothold in the United States is not great, but if it should do so, we have abundant evidence of the value of vaccination against this disease from the experiences in India, Japan and the Philippine Islands.

#### INSECT CARRIERS OF DISEASE.

The recognition of the connection of the common house fly with the dissemination of typhoid fever, cholera and dysentery has led to the development of crusades against these household pests. In many instances the crusade is not directed against the most vulnerable point. These campaigns should be directed toward the removal of all filth that may serve as breeding places for flies, and in this way the crusade for eradication will be very much simplified.

The campaigns directed against the mosquito and the fly in many places will result in reducing the incidence of diseases disseminated by these insects, especially where campaigns are directed against the removal of the breeding places of insects. The ultimate effects of these campaigns will be as far reaching as were the effects of the fight against the yellow fever mosquito in Cuba and New Orleans, where, as a consequence, the general health of the people was improved, in addition to the eradication of yellow fever.

The prevalence of flies and mosquitos in large cities can be greatly diminished by removing their breeding places. Flies breed in piles of decaying refuse material, and especially in manure pits. These latter should receive more careful supervision and more frequent cleansing and disinfection. Mosquitos breed in any pool of water that is accessible, but the most convenient place is the catch basin of the sewer inlet at the corner of nearly every street. These basins contain water constantly, and it is here that myriads of mosquitos are hatched, even in the center

of the city. With properly constructed sewers these catch basins are unnecessary and can be removed without endangering the health or comfort of any one.

#### THE USE OF CHEMOTHERAPEUTIC AGENTS.

The use of quinine as a preventive of malaria has been practised for a long time, and serves to protect persons obliged to go into notoriously malarial regions. The administration of fifteen grains of quinine on each of three successive days suffices to protect against malaria.

Trypan red and trypan blue, as well as atoxyl, are of value in protecting against sleeping sickness, as well as against relapsing fever.

One of the triumphs of modern medicine is the discovery by Ehrlich of the arsenical preparation known under the name salvarsan. While salvarsan is of great value as a therapeutic agent, it is also of importance as a prophylactic agent.

The most important advance in the prevention of a particular disease during the past ten years has been the discovery of *Spirochæta pallida* by Schaudinn, the discovery of the specific blood reaction in syphilis by Wassermann, and the discovery by Ehrlich of the therapeutical value in syphilis of salvarsan. These three discoveries stand out as important landmarks in the advance of our knowledge and practice of preventive medicine. The greater certainty in the diagnosis of syphilis and the positive curative value of salvarsan have removed from syphilis much of the dread which we entertained, and our equally great despair which we formerly experienced, concerning the ultimate cure of this loathsome disease. The saving of suffering and death through the discoveries of Schaudinn, Wassermann and Ehrlich will be beyond all calculation in the ages to come. With the more general introduction of salvarsan into the every day practice of medical men called upon to treat syphilis there will be immeasurable benefit to humanity in the saving of life and usefulness to the community.

The value of the various modern methods for the purification of water and sewage is indicated by the reduction in the morbidity and mortality rates from the water borne diseases in localities where these preventive measures are employed.

The methods of water and sewage purification may be divided into chemical, physical and biological.

The chemical methods used in the treatment of water and sewage are treatment with copper sulphate, hypochlorites and ozone. The physical methods are the use of heat and the ultra-violet rays. The biological methods consist in various forms of filtration, in which the purifying effects are produced by the liquefying and the nitrifying bacteria in the slow sand filter; the disease producing bacteria being held back and destroyed.

In the purification of sewage the most satisfactory and economical process is the passage of the sewage through what are known as sprinkling filters for the rapid reduction of the organic matter. The effluent from the filters is then treated with hypochlorites to remove the faecal bacteria.

The hygienic value of the purification of water supplies and of sewage exceeds our expectations, in that we find that these operations are instrumental in reducing not only the morbidity and mortality rates of the ordinary water borne diseases, but the total morbidity and mortality rates of the community. This remarkable influence upon the general health of communities was first pointed out by Mills and Reincke and almost simultaneously by Hazen. The effects following the introduction of pure water and the purification of sewage show that in many instances infection is favored by the reduced vitality of the people of a community because of the prevalence of other infectious diseases.

The purification of the sewage of towns by modern biological methods is contributing toward the general reduction of the incidence of disease in those towns that subsequently use the water of the streams into which the raw sewage has been discharged. The more general enforcement of the laws with regard to the disposal of sewage, now on our statute books, will aid in still further reducing the incidence of the diseases of the gastrointestinal tract.

Raw milk, unless obtained from cows free from disease and collected in a cleanly way, in clean utensils, is not fit for consumption. While raw milk is more easily digested than heated milk, it is safer to use heated milk, unless the raw milk is collected in a sanitary manner from healthy cows.

Pasteurization of milk should be under proper control and should be practised on fresh milk and not on milk that is twenty-four or more hours old. Pasteurized milk, where the process is carried out in an approved way, and the milk is shipped in sterilized bottles, will be reasonably safe to use. The temperature



to which milk should be heated depends somewhat on the length of time the heat is maintained, 140° F. for twenty minutes serves to kill tubercle bacilli and renders the milk safe, as far as tuberculosis, typhoid fever, scarlet fever and diphtheria are concerned.

The work of the laboratories of boards of health in controlling the release of convalescing diphtheria patients from quarantine, is in line with the advancement of the work of these laboratories from the position of mere aids to diagnosis to that of factors in the more complete protection of the health of the people. It would be desirable to have these laboratories also determine when convalescing typhoid fever patients may be released from isolation without danger of infecting those with whom they may associate.

The principal agencies through which progress has been made in the prevention of disease are the following: Isolation and disinfection; vaccination in its broadest sense; the purification of water and sewage; the introduction of improved methods of diagnosis in the laboratory; and the discovery of valuable chemotherapeutic agents of practically specific character, as in the case of salvarsan.

There is no doubt that the near future will witness important advances all along the line of present day practice for the prevention of disease. Much good can be accomplished in the more efficient application of the measures already in our hands. Prompt diagnosis, more rigid isolation and more efficient disinfection will accomplish a great deal. There is less disposition today to avoid the discomfort and annoyance of isolation than a few years ago. There is still great lack of appreciation on the part of some physicians as to the value and significance of those measures. It is not probable that physicians who still doubt the existence of a specific germ for each infectious disease will be competent to institute the preventive measures that are necessary to localize the infectious materials to the immediate vicinity of the patient. The efficiency of isolation is still at times rendered defective by the physician who neglects to protect his body and clothing against becoming carriers of the infectious agents. No physician is properly qualified who has not been trained as to the most efficient methods of handling infectious diseases. Equal importance attaches to the training of the nurses or attendants who have charge of the patient. Unless they are properly instructed in the most approved methods of isolation and in the most satisfactory methods of dealing with the clothing, dis-



charges, etc., of patients, our efforts to control infectious diseases will not be successful.

The purity of the water supply of a community should not be open to doubt. Neglect on the part of public officials to supply a pure water should be regarded as just as reprehensible as the worst form of graft and punishable to the same degree.

Along with the purification of water supplies, we should insist upon the proper purification of all the sewage before it is allowed to gain access to the streams or other bodies of water used for domestic purposes.

A great deal of the false security of the public with regard to the efficiency of many so-called disinfectants must be changed to a positive certainty by insisting that all substances sold for purposes of disinfection shall be of standard strength as measured by the carbolic acid coefficient adopted by the U. S. Government.

The public, and physicians as well, must be instructed in the limitations of disinfectants and taught that no agent of this character can act efficiently unless brought into direct contact with the infected material and held in contact in sufficient concentration and for a sufficient length of time to permit it to exercise its function.

The medical profession owes a duty to the State in respect to the proper education of the general public as to the value of vaccination against smallpox. We should overcome once and for all the silly agitation of the antivaccination people. There is no measure for the prevention of disease that is of greater value than vaccination against smallpox, and the public should be enlightened through some appropriate channel. With information as to the value of vaccination properly disseminated, we shall see the agitation against it vanish. In this work of enlightening the public, the physician should take a leading part.

In the control of diseases of the gastrointestinal tract, as typhoid fever, dysentery and cholera, the careful disinfection of all evacuations is essential. In typical attacks of these diseases, this is usually done in the practice of properly trained physicians, but there are no doubt frequent instances where this important precautionary measure is neglected.

The mild and unrecognized attacks of these diseases are evidently the most important sources from which infectious materials are disseminated, and especially from convalescents who persist in carrying and in giving off the infectious agents for months and years. These individuals should not be released

from observation until bacteriological tests demonstrate that they are no longer harboring the organisms and therefore a menace to the community.

The improved laboratory methods make it possible to determine the presence of bacillus typhosus in urine and fæces in a few days with certainty, and we should have a rule requiring bacteriological control of the release of each convalescent from typhoid fever.

The important diseases which are still of great public health interest because of our limited means of controlling them are: Measles, scarlet fever, pneumonia and tuberculosis.

Our defenses against these diseases are limited to isolation and disinfection.

The causative agents in measles and scarlet fever are still unknown, but there are certain analogies between these diseases and smallpox, and it may be possible to discover protective measures against them similar to vaccination against smallpox, even without determining the exact nature of the agents causing them. The resistive powers, which some individuals exhibit toward the scarlet fever and measles infection, warrants the assumption that such protective measures may be discovered.

I feel that it is not too much to hope for efficient preventive measures against pneumonia and tuberculosis. The greater resistive powers against these diseases of some individuals may be acquired by all who live rational lives in the open air. If dietetic and hygienic measures are capable of exerting curative effects they should likewise possess preventive properties.

The limitation of infection by the pneumococcus and tuberculosis bacillus by proper care of the excreta of persons suffering from these diseases is certainly possible. Carriers of the pneumococcus should receive the same supervision as carriers of *Bacillus diphtheriæ* and *Bacillus typhosus*, that is, isolation until they are free of the organisms.

The efforts now being made in a more or less sporadic way to limit tuberculosis infection in the domestic animals should be pushed more systematically, because the evidence of the intercommunicability of the human and bovine types of the organism is becoming stronger every day. The recommendations on this subject of the committee of the American Medical Association should receive general acceptance by State and municipal boards of health.

In a brief discussion of this subject it is not possible to do more than indicate some of the more important measures now in use and to point out the direction in which greater security of the public health may be sought in the future.—*New York Medical Journal*.

## Recent Progress.

### HYPERTENSION.

L. G. Visscher, Los Angeles (Journal A. M. A., December 2), says that reduction should not always be our aim in the treatment of hypertension. In all pathologic hypertension there is a limit below which reduction is impossible though it is still above normal. Further reduction would aggravate the condition by disturbing the cardiovascular equilibrium. Luckily we do not have at our command powerful remedies the application of which would bring about so much discomfort as to indicate to the patient that he is having too much of a good thing. For actual treatment, he says, only people past 40 ask our counsel. It is our duty to warn the young against the irregular habits of diet and living which can bring about the condition. Chronic hypertension is more prevalent in the middle and well-to-do classes. It is especially the result of continuous brain work without let up, together with overstimulation by coffee, nicotine, alcohol and other indulgences. Among the toxins causing hypertension the purin bodies stand high. It is necessary to alter the diet list, to reduce the acidosis and provide alkalies freely in various ways. Hand in hand with manometric examination should go the determination of urea, indican and the acid-titer of urine, in order to determine the proteid tolerance. He thinks it better to give non-alkaline laxatives when indican is abundant. It is necessary that the intra-abdominal pressure should be slightly positive, but when in excess the diaphragm is pushed upward, the venous inflow from the extremities is obstructed and a rise of blood-pressure in the splanchnic arteries is caused by the compression if the heart is strong. There is slight dyspnea, moderate hypertension, aching limbs, torpid liver and catarrhal gastritis. When the heart has lost its tone the peripheral pressure will not rise on account of reduced systolic ventricular pressure. The opposite effects on blood-pressure dependent on the condition of the heart are often seen and the same agent may be a pressor or depressor

in the same individual according to its quantity and duration. The causes of high intra-abdominal pressure above stated give the indications for its treatment. The caloric value of the food must be kept up in the regulated diet, which should be adapted to the conditions of the individual stomach with special cautions according to the case. If patients are lean we may have to overfeed them and we may do harm in too active measures for the reduction of obesity. A reasonable amount of exercise, with warm bathing followed by cold sponging, are among the measures recommended, but minute individual observation will be required to correctly regulate dietetics. The liver regulation is extremely important and Visscher says if he had only one drug to use in these conditions he would choose calomel. While mental activity will increase the tension, he says, from all considerations combined it seems that hypertension has to be met and treated more during the hours a patient is away from work than when he is at it. People with hypertension do better to eat light evening meals with ease thereafter for a few hours and take a moderate amount of physical exercise, a warm bath, perhaps a warm enema and sleep in a warm bed with the windows wide open. As regards drugs, he advises caution in the use of the iodids in cases which show thyroid enlargement, but they do relieve symptoms and are all-sufficient in syphilitic arterial disease. Theobromin is recommended as of decided benefit. He has found it valuable in agina and anginal states. Though nitrites relieve anginal suffering, it is not always by general lowering of blood-pressure, which may be increased peripherally. Their excessive dilatation of the cerebral vessels limits their use in hyperpietic nose-bleeds. Their combination with cardiac tonics is sometimes advisable. Other drugs mentioned and their special indications are chloral, digitalis, occasional use of the bromids and, as the deposition of calcium salts adds to the rigidity of the arteries, it has been deemed well to reduce the lime intake.

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#### CORRECTION OF NASAL DEFORMITIES BY MECHANICAL MEANS AND BY THE TRANSPLANTATION OF BONE.

William Wesley Carter, New York (Medical Record, December 9, 1911), describes two methods which he has devised for the relief of deformities of the nose and of the nasal septum.

He divides nasal deformities into those with and those without loss of bony tissue. In the former he employs the "bridge" splint, a hinged framework adapted to keep the tissues in place with the aid of internal molded rubber splints. These can be used wherever there is sufficient bony tissue to support the splints. The author has operated upon about fifty patients by this method, including recent fractures, old, depressed, and irregular fractures, and lateral deformities. Great care should be used in the selection of cases; the bony framework should be thoroughly mobilized, and, if necessary, the septum lengthened; the wings of the bridge must be well padded with gauze and the skin on which they rest should be bathed with alcohol to prevent excoriation. In nasal deformities attended with loss of bone the author employs an autoplasmic operation, transferring bone from the ninth rib of the patient to take the place of the bone that has been lost. He does not remove the periosteum with the bone, since he does not wish to produce new bone. This method is of great value in cured cases of syphilis in which nasal deformities are present. The introduction of the bone never causes any irritation and the wound quickly heals.

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#### THE TREATMENT OF CERTAIN OBSTRUCTIVE BENDS OF THE INTESTINES DUE TO ABNORMAL MES- ENTERIC ATTACHMENTS AND INADE- QUATE PARIETAL SUPPORT.

Franklin H. Martin, Chicago (Journal of the American Medical Association, November 11, 1911), says there are four parts of the intestinal tract that suffer notable distortion and lead to pathologic results from an anomalous condition of the mesenteric attachments and inadequate support of the abdominal walls, viz. The duodenum, the terminal portion of the ileum, the appendix vermiformis and the sigmoid. The distortion usually occurs as the result of the two principal causes combined, but may occur in a less aggravated form from only one of the two. In his paper he specially treats of the treatment of the so-called Lane's kink, the term applied to a pathologic bend of the last six inches of the ileum. The cause of the kinking of the ileum at this point is due, he thinks to its possessing an extremely short mesentery. Given this comparatively fixed portion of the compressible tube, there are two factors that lead to its distortion:



(a) a too movable or displaced large bowel, (b) an abnormal position of the remainder of the small bowel or other viscera. Adhesions occur from extension of infection from the appendix and uterine appendages, from violent friction of the opposed serous membranes, from violent mechanical action resulting from the factors causing the distortion and, rarely, from the direct migration of bacteria through the intestines. He has observed, accompanying Lane's kink, prolapses of the cecum and ascending colon, also of the stomach with transverse colon below it and a general tendency to visceral prolapse, and he thinks the kinks or bends are due, therefore, to such causes. The conditions may be congenital or acquired. The method he pursues in relieving the condition is laparotomy through a right rectus incision and treatment of any concurrent diseased condition after careful exploration of the abdomen. He especially separates adhesions about the sigmoid and straightens out any acute bends of the intestine, as it is the acute bend in the bad position made permanent by adhesions which causes symptoms. He then brings up the head of the cecum with the terminal portion of the ileum. If it is covered with an adventitious membrane, as it frequently is, this should be torn through and the underlying structures freed. The ileum then should be made taut to reveal the adhesions and these carefully divided with a knife, or, when particularly frail, with sponge dissection. This releases the intestine and it will straighten out. The patient should be in the Trendelenburg position during the operation. After the bend is freed the cecum and attached ileum are replaced in the normal position, the omentum spread over the parts and the abdomen closed. The patient is kept in the Trendelenburg position for a week or so and systematic gymnastics of the abdominal wall are given later for 15 minutes twice a day with the patient in the Trendelenburg position without the abdominal support which is worn during the day. This should be applied and removed with the patient in the Trendelenburg position when the abdominal exercises are given. Careful regulation of diet is followed in the after-treatment, with special reference to increasing the flesh, especially the normal deposit of fat. Twelve cases are reported.

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#### PHAGOCYtic VARIATIONS.

After a rather extensive review of the literature in regard to phagocytosis and phagocytic power of the leukocytes and

a description of the methods of investigation of the subject in the Memorial Institute for Infectious Diseases, L. Hektoen, Chicago (Journal A. M. A., November, 11), points out the necessity of using suspensions similar in preparation and number of contained leukocytes in the determination of the comparative phagocytic power. It appears that this power of the leukocytes of the blood may vary somewhat even in persons in health, and the consideration of their source has some importance. At birth they have less power phagocytically than in the adult and decrease during the first months of life, the adult standard for streptococci, pneumococci and staphylococci being reached about the third year of life. Hence the opsonic index in infants should be determined with leukocytes and serums of infants of the same age as the standard. There is no conclusive evidence that the different kinds of neutrophils differ in phagocytic activity. There are indications that their phagocytic power is below normal in myelogenous leukemia, but further studies are needed. The phagocytic power has been found above normal as regards pneumococci, streptococci and staphylococci in pneumonia, scarlet fever and other conditions where there is acute leukocytosis and a good prognosis. In pneumonia the leukocytes may be more resistant to heat than normal leukocytes; they may have greater attraction for pneumococci and take up more virulent germs than normal leukocytes (Rosenow). The destructive power of leukocytes in pneumonia and scarlatina for pneumococci and streptococci runs parallel with the phagocytic power. In severe cases of these diseases the phagocytic and destructive powers will be lower than normal. In recent exudates the leukocytes are more active as phagocytes for streptococci, pneumococci and tubercle bacilli than the leukocytes of the corresponding blood. The exact causes of the increase in activity are not known, but has been suggested that it is due to the predominance of young leukocytes. In only one case (Rosenow) has a specific increase in phagocytic power of the leukocytes been noticed. In certain chronic infections, notably pneumococcus endocarditis and chronic erysipelas, the phagocytic power of the leukocytes may be either above or below normal, and at times there may occur a distinct fall, which may be specifically limited to the infecting microorganism or observable only in the native serum, or both. The reasons for this are yet obscure, but it seems related to changes in the fluid part of the blood. It may

be concluded that the fluid of the blood, independently of its opsonic functions, directly influences the phagocytosis and intraleukocytic destruction of certain bacteria. It may be said that in acute as well as some chronic infections with pneumococci and streptococci, and possibly also other bacteria, a real grasp of the specific anti-infective powers of the blood of the patient is obtainable only by the determination of the combined phagocytic powers of the leukocytes and serum of that blood and of their combined destructive powers. In chronic infections this determination should be made with reference to the infecting strain. Here the opsonic index alone may be misleading, as it may be normal or above normal, while the phagocytic and destructive powers of the patient's leukocytes are less than normal. Thus far specific variation in the leukocytic activities with respect to the infecting strain have been observed in infections of long standing only. Such seeming very special adaptations naturally require time for their development. Further studies along these lines are indicated as leading to a better understanding of such infections.

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#### A SUGGESTED READJUSTMENT OF OUR VIEWS ON HEART EXAMINATIONS FOR LIFE INSURANCE.

Charles F. Martin, Montreal, Canada (Medical Record, December 23, 1911), believes that a better appreciation of cardiovascular risks will come when there are issued to every examiner proper forms, with special questions, so that the chief medical officer may have an accurate and intelligent interpretation of the risks on which he is to pass judgment. Each individual case must be judged on its own merits; the presence of murmurs, irregularity, high blood pressure, and other signs indicative of disturbance of heart action must be considered. A murmur alone is not an indication against accepting a risk. Good general health and habits and absence of cardiovascular symptoms are to be regarded as favorable to the applicant. The age, history, mode of life, occupation, amusements, work, food, anxiety, insomnia, and various bodily affections all have a bearing on the prognosis. The heart must be studied with regard to effort, exposure, dyspnea, palpitation, pain, exhaustion, sense of compression, etc., before making a decision. Irregularities should be carefully investigated as to cause, site, or origin; moderately high blood pressure is not a contraindi-

cation to the risk. Cases of fatty heart may show no signs of failure, and angina pectoris has few symptoms to indicate danger. In functional heart disease the signs are more important than the symptoms; in organic trouble the symptoms are more important than the signs.

#### TENDON TRANSPLANTATION AND SILK LIGAMENTS: A FEW PRACTICAL POINTS IN THE TECHNIC.

E. W. Ryerson, Chicago (The American Journal of Orthopedic Surgery, August, 1911),—Silk ligaments have been implanted by the author in almost 200 instances. He prepares the dry skin for operation by coating it with a single layer of iodine and has not met with an infection since this method was employed. Ryerson, therefore, does not drain the wounds as Lange has suggested. He exposes the field by a curved flap-like incision, in this way preventing the skin incision from overlying a silk ligament; the author considers this step an important one. The silk employed is a heavy braided one coated with a solution of bichloride of mercury and not with paraffin. Ryerson prefers a single heavy strand to several finer ones; although the latter more nearly approaches Nature, one or all of the finer strands may break.

The technic employed by the author for cases of paralytic drop foot is briefly: A small flap incision is made around the insertion of the tibialis anticus tendon and a strand of No. 12 braided silk is firmly sutured to the deep tissues and periosteum (even the bone) at this insertion. The end of the strand is threaded through the eyes of a stiff probe and the latter is passed within the sheath of the anterior tibial tendon to a point three inches above the ankle-joint. A small flap incision here exposes the end of the probe. The silk strand is withdrawn and slipped through a hole drilled through the edge of the tibia. Similarly, a thread of silk is attached to the outer side of the tarsus, passes upward in the sheath of the peroneus tertius or extensor communis tendon and is slipped through the drill hole in the opposite direction. After the proper elevation of the foot is obtained the two strands are tied in front of the tibia.

The chief advantages claimed for this method are its simplicity and the fact that the silk ligaments will lie under the annular ligament and will not make disagreeable subcutaneous ridges.

### TRAUMATIC RUPTURE OF THE ABDOMINAL VISCERA.

A. B. Short, Bristol (*Lancet*, September 16, 1911), reports 30 cases in the last 10 years which included ruptures of the liver, intestine, spleen, kidney, bladder, inferior vena cava and mesenteric vessels. The great lesson is the need of cautious and patient observation after an abdominal injury, especially if it is of such a nature that the blow is unexpected or severe. No favorable opinion should be based solely on the rate or character of the pulse. In every case of rupture of any abdominal viscus in which the pulse-rate on admission exceeded 100, the patient died within 24 hours. The temperature is of value; in the majority of cases it was subnormal. Abdominal pain and rigidity were almost constant. Vomiting was not usual.

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### TREATMENT OF GOUT.

A. E. Taussig (*Interstate Medical Journal*, December), in a review of the recent literature of gout brings attention to several theoretically interesting and practically valuable points. Gout is no longer regarded as due to an over production of uric acid, but rather to a faulty elimination of that substance. Uric acid is derived exclusively from the disintegration of substances contained in the nuclei of cells, whether these be contained in the ingested food or in the cells of the body which have undergone destruction. In gout the ability to handle uric acid seems diminished in every respect. The result is an accumulation of mono-sodium-urate in the blood until sooner or later the limits of solubility are passed and there is a deposit in crystalline form of the urate in the subcutaneous tissues or joints. This retention of uric acid may be watched in the urine. normally when a person is given a large amount of uric acid forming (purin) food, there is a prompt and rapid elimination of urates in the urine. In gout this elimination is tardy and sluggish. At only one time does the urate content of a gouty patient tend to become high, and that is during the acute attack. At this time it may be increased to extraordinary amounts. These characteristics are very valuable in diagnosis. Taussig believes that the use of colchicum should be discontinued, as it does no permanent good and may do considerable injury to the heart. A purin free diet is the only rational treatment



to be employed. The potassium salts in potato and rice make these articles valuable in the dietary. Treatment with large doses of hydrochloric acid, from 50 to 90 drops of the concentrated acid daily, well diluted, has been found of immense value in the hands of some men. Kionka and His have recently used radium emanations with wonderful success, and declare that the beneficial effects of natural waters are in direct proportion to their radio-activity. The action of the radium seems to be in its ability to change the less soluble urate salt into the more soluble, and thus facilitate its elimination.

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### BLOOD-PRESSURE IN PROGNOSIS.

Henry Wireman Cook, Minneapolis, Minn., (Medical Record, November 11, 1911), states that instrumental estimation of blood pressure has become an established clinical sign of increasing importance in life insurance examinations. Coincident with greater experience in the use of this method there is a tendency to restrict the limits of the normal variation of blood-pressure. The maximum blood-pressure that can be considered normal varies with the company requiring the examination between 145 and 180; the minimum is not yet certain, but a pressure below 105 should receive investigation. This test is easily carried out with no inconvenience to the applicant and gives valuable information. At present over one hundred companies require the determination of blood-pressure. This varies with waking and sleeping, eating and exercise. Change in blood-pressure plays an important part in pneumonia, bronchitis, and emphysema. Persistently increased blood-pressure is a cause of arteriosclerosis and atheroma, and is always associated with Bright's disease. In tuberculosis, anemia, and debility there is a low blood-pressure.

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### RUPTURED PUS-TUBE.

A. P. Stoner, Des Moines, Iowa (Journal A. M. A., November 18), reports two cases of septic peritonitis due to rupture of a gonorrheal pyosalpinx. Both were treated by laparotomy and removal of the affected tube. The nature of the affection was determined by microscopic examination showing the gonococcus. He regrets that cultures were not made, as it leaves the question whether there were other germs concerned an open one. Many observers believe that infection of the peritoneum

generally by the gonococcus does not occur and general diffuse peritonitis from pus-tube rupture is not common. Bonny, in an extensive search of the literature, brought the number of reported cases up to forty-five in 1909 and added eleven more cases, including one of his own. Adding these two there are forty-seven and their gonorrheal nature adds to their interest.

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## Book Reviews

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THE WAY WITH THE NERVES. Letters to a Neurologist on Various Modern Nervous Ailments, Real and Fancied, With Replies Thereto, Telling of Their Nature and Treatment. By Joseph Collins, M. D., New York. New York and London; G. P. Putnam's Sons, 1911. Pp. Vi-313.

The series of letters comprising the book were published originally in the *Medical Record*, and a number of them appeared in book form in a volume entitled *Letters to a Neurologist*. In the present volume there is a brief sketch of the condition discussed in the letters and the answer and the author has revised some of the original epistles to make them more serviceable in their new field, with no loss in the information supplied. In chapter sixteen, which might have been eliminated in a book designed for the lay public, the letters interchanged between the general practitioner and the neurologist are not conducive to the most harmonious relations which should exist between practitioner and specialist. In these letters are set forth in simple language an account of the commoner nervous and mental diseases, and a discussion, briefly, of some of the questions which the neurologist is often asked to answer. For physicians a reading is both suggestive and reminiscent.

THE PRACTITIONER'S VISITING LIST FOR 1912. An invaluable pocket-sized book containing memoranda and data important for every physician, and ruled blanks for recording every detail of practice. The Weekly, Monthly and 30-Patient Perpetual contain 32 pages of data and 160 pages of classified blanks. The 60-Patient Perpetual consists of 256 pages of blanks alone. Each in one wallet-shaped book, bound in flexible leather, with flap and pocket, pencil with rubber, and calendar for two years. Price by mail, post-paid, to any address, \$1.25. Thumb-letter index, 25 cents

extra. Descriptive circular showing the several styles sent on request. Lea & Feibiger, Publishers, Philadelphia and New York.

The text portion of THE PRACTITIONER'S VISITING LIST FOR 1912 has been thoroughly revised and brought up to date. It contains, among other valuable information, a scheme of dentition; tables of weights and measures and comparative scales; instructions for examining the urine; diagnostic table of eruptive fevers; incompatibles, poisons and antidotes; directions for effecting artificial respiration; extensive table of doses; an alphabetical table of diseases and their remedies, and directions for ligation of arteries. The record portion contains ruled blanks of various kinds, adapted for noting all details of practice and professional business.

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#### POSTNASAL HEMOSTAT.

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H. R. Boettcher, Chicago (Journal A. M. A., December 16), describes an instrument used by himself and his assistants in the Illinois Eye and Ear Infirmary in all cases of bleeding from the postnasal space, more especially after adenectomy. It consists of a cannula ten inches long, bent up to nearly a right angle at the small end, over which a small rubber bag is placed and fastened with a silk thread. The cannula has a stop-cock at the other end, to which is attached a rubber tube and bulb. Immediately after removal of an adenoid or other growth the upright portion of the cannula with the small rubber bag is introduced into the postnasal space and inflated by compressing the bulb. After it is inflated and fills the space completely, the stop-cock is turned and the bag kept in position for two or three minutes, which is enough to check the hemorrhage in the average adenoid operation.

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That "highly respected and universally trusted man, the family physician," is selling his patients to the highest bidder in many instances, according to Dr. C. A. L. Reed, of Cincinnati. A scathing denunciation of the "unethical custom" of fee-splitting between general practitioners and specialists, which he said was widely prevalent, marked an address by Dr. Reed at a banquet, December 13, given by the Washington Surgical Society. He said this practice was growing in some of the larger cities, notably Chicago and Louisville.

## PRACTICAL GLEANINGS.

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In carcinoma of the bowel local signs appear first and deterioration in health later, in intestinal sarcoma impairment of health is first noted and local signs appear later. In carcinoma obstructive symptoms are the rule, in sarcoma the exception. In carcinoma the growth of the tumor is relatively slow, in sarcoma it is rapid.

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When doing a nephrectomy: If healthy the proximal end of the ureter should be cauterized and dropped back into the wound; if unhealthy it should be attached to the wound and drained.

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No chronic bone swelling should be subjected to operation without excluding syphilis.

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Instruct female gonorrheics to lie prone when using a douche. In the usually resorted to squatting position the fluid runs out as fast as it enters and does not distend the folds and reach all points as it should to be most effective.

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In a case of abdominal disease a vague mass in the epigastrium associated with exaggerated distinctness of aortic pulsation at that point suggests pancreatic disease or retroperitoneal lymphatic tumor.

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About 20 per cent. of urethral obstructions in old men are malignant.

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When vomiting and right iliac pain or tenderness are associated with a chill and pyrexia of 105 or 106 degrees, exclude pneumonia and malaria before operating for appendicitis. If the appendix is diseased, exclude mesenteric thrombosis before closing the wound.

# ACKNOWLEDGMENTS.

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1. (a). SPECIALISM WITH SPECIAL REFERENCE TO PROCTOLOGY.  
 (b). DISEASES OF THE RECTUM AND ANUS.  
 (c). RECTAL DISEASES: A Report of Three Cases—Condyloma, Lipoma, and Foreign Body.  
 (d). OPERATIVE TREATMENT OF INTERNAL HEMORRHOIDS; Including a Consideration of the After-Treatment as Well as the Sequelae which Occasionally Ensur.  
 (e). SYPHILIS OF THE ANO-RECTAL REGION.  
 (f). POLYPOID GROWTHS AND RECTAL POLYPI WITH A REPORT OF A RECENT CASE OF FIBROMA, UNDERGOING MYXOMATOUS DEGENERATION; By Lewis H. Adler, Jr., M. D., Philadelphia. Reprints.
2. SWAMP FEVER IN HORSES; By L. Van Es, E. D. Harris and A. F. Schalk, North Dakota Agricultural Experiment Station. Bulletin 94.
3. THE SENSORY PHRENIC AND ITS ORGANS; By Leonard J. Kidd, M. D., London, England. Reprint.
4. SOME REMARKS ON THE TREATMENT OF ATROPHIC RHINITIS; By Sam Goldstein, M. D., New York. Reprint.
5. AMERICAN MEDICINAL LEAVES AND HERBS; By Alice Henkel, Bureau of Plant Industry—Bulletin No. 219. Washington Government Printing Office, 1911.
6. STUDIES UPON LEPROSY. Public Health Bulletin No. 50. Washington Government Printing Office, 1912.
7. ORIGIN AND PREVALENCE OF TYPHOID FEVER IN FORT SMITH, ARK., AND MEASURES NECESSARY FOR ITS CONTROL; By W. H. Frost. Reprint from Public Health Reports No. 67. Washington Government Printing Office, 1911.
8. (a). THE RESISTANCE OF SMALLPOX VACCINE TO THE COAL-TAR DISINFECTANTS; By Chas. T. McClintock and Newell S. Terry.  
 (b). SOAPS FROM DIFFERENT GLYCERIDES—THEIR GERMICIDAL AND INSECTICIDAL VALUES ALONE AND ASSOCIATED WITH ACTIVE AGENTS; By H. C. Hamilton. Reprints from the Research Laboratory of Parke, Davis & Company, Detroit, Mich.



NEWS ITEMS.

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The Southern Surgical and Gynecological Association met at Washington, December 12, for the twenty-fourth annual session, about 125 members being present. In the absence of District Commissioner Rudolph, Daniel J. Callahan, First Vice-President of the Chamber of Commerce, delivered the address of welcome which had been prepared by the Commissioner. Papers were read by Drs. Louis Frank, Louisville, Ky.; R. A. Barr, Nashville, Tenn.; J. C. Bloodgood, Baltimore; Miles F. Porter, Fort Wayne, Ind.; J. E. Moore, Minneapolis, Minn.; B. C. Hirst, Philadelphia; Robert T. Morris, New York; E. A. Ballock, Washington; W. M. Jordan, Birmingham; G. Edward Gavin, Mobile, Ala.; R. C. Coffey, Portland, Ore.; T. C. Witherspoon, Butte, Mont.; G. A. Hendon, Louisville, Ky.; Albert Vander Veer, Albany, N. Y., and John F. Moran, of Washington.

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The 154th stated meeting of the Jefferson County Medical Society was held Wednesday evening, December 27th, at the Atherton Building. This being the annual business meeting, no scientific program was had, the evening being devoted to hearing reports of committees and election of officers for 1912. The following officers were elected: President, Dr. Edward Spedel; Vice-Presidents, Drs. Herbert Bronnier and E. L. Henderson; Secretary, A. C. L. Percefull; Treasurer, Dr. C. H. Harris; Executive Committee, Drs. John J. Moren, Challon G. Forsee and Walter F. Boggess.

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The Clifton Medical Club met at the office of Dr. W. W. Smith for their December meeting, the President, Dr. J. M. Morris, presiding. The following papers were presented: "Cause and Pathology of Acute Rheumatism" and "The Differential Diagnosis and Treatment of Acute Rheumatism," by Drs. W. W. Smith and E. T. Grasser.

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The tri-yearly session of the Muldraugh Hill Medical Society was held in Elizabethtown, Ky., December 14, 1911. A good representation was present, including a large delegation from Louisville. Many papers were read which were of exceptional merit and reflects credit upon the programme committee of the society.

The annual banquet of the Falls Cities Homeopathic Medical Society took place at the Galt House, December 16th, Dr. G. S. Coon acting as toastmaster. A number of toasts were responded to.

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The Scott County Medical Society elected the following officers for the coming year: President, Dr. Harry V. Johnson; Vice-President, Dr. John E. Pack; Secretary and Treasurer, Dr. Callister Barlow; Censors, Drs. W. S. Alphine, F. L. Heath and A. B. Coons; Delegate, Dr. D. B. Knox; Alternate, Dr. Robert Wesley Porter. The next meeting will be held in March.

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The following Louisville Surgeons attended the sessions of the Southern Surgical and Gynecological Association, held in Washington, December 12th: Drs. L. S. McMurtry, J. Garland Sherrill, W. O. Roberts, Granville S. Hanes and Louis Frank.

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Drs. Louis Frank and Henry E. Tuley, President and Secretary, respectively, of the Mississippi Valley Medical Association, were in Chicago last month, making arrangements for the meeting of the Association in Chicago next fall.

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A bill providing for the compulsory teaching of physical culture in the public schools of all cities of the first, second and third class in the State of Kentucky will be submitted to the next legislature. A committee of the Louisville Turngemeinde has been given assurance by members of the legislature, recently elected, that they will support it, and it is believed the bill will be passed. Cities like Frankfort, Newport, Covington, Owensboro, Lexington and Louisville will be affected by the measure.

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Dr. J. S. Lock, of Barboursville, Ky., has been appointed sanitary inspect. under the Carnegie Hookworm Commission. His jurisdiction will extend throughout the Kentucky mountains, and he will have two assistants.

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The Eastern division of the Eclectic Medical Association of Kentucky held its semi-annual meeting at Ashland, December 20 and 21.

On November 27, Dr. W. W. Smith, of Louisville, was appointed Pension Examining Surgeon at Louisville in place of Dr. D. S. Wilson, who resigned.

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Dr. Dunning S. Wilson, of Louisville, has been re-elected medical director of the Waverly Hills and Hazelwood Anti-Tuberculosis Hospitals, Louisville, at an increased salary and the scope of his work has been enlarged.

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Kentucky has arranged for reciprocity without further examination with Ohio, both boards reserving the right to reject any applicants who fail to comply with their entrance requirements at the time of graduation.

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The State Board of Medical Examiners held examinations at the Jefferson County Armory last month, thirty-two applicants taking the examinations.

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Dr. Lillian South, of Bowling Green, addressed the students of the Medical Department of the University of Louisville on the work of the department of which she is the head. She was presented by Dr. W. Ed. Grant, Dean of the medical department, and was followed by Dr. J. M. McCormack, Secretary of the State Board of Health, who gave suggestions regarding the treatment of the hookworm. Dr. South's studies of hookworm disease, tuberculosis, typhoid fever and diphtheria were illustrated by stereopticon views and was greatly appreciated by a large audience.

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A meeting of representatives of more than sixty municipal and charitable institutions for children and about 100 citizens of Louisville was held Friday night in the assembly room of the Louisville Free Public Library and plans were outlined for the holding of a conference and exhibit the first week of next May for the study of problems dealing with the welfare of children. An organization to be known as the Child Welfare Conference and Exhibit Association was formed, and the following officers were elected Mrs. Morris Belknap, President; Mrs. Alfred Brandeis, vice president; Miss Elizabeth Walsh, treasurer, and Miss Adeline R. Zachert, secretary.

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Addresses were made by Bernard Flexner, Dr. Dunning S. Wilson, Dr. Henry E. Tuley, Mrs. Letchworth Smith, Supt.

E. O. Holland, of the Board of Education; Supt. George L. Sehon, of the Kentucky Children's Home Society, and Supt. B. B. Huntoon, of the Kentucky Institute for the Blind.

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Tuberculous children will not be allowed in the new open-air school which the Board of Education hopes to have ready for opening by January 15. The institution is a free public school for anaemic children, and is of special construction. Milk, cocoa, eggs and nourishing food or stimulants will be served free by an attending nurse. Weak-minded children or those affected with tuberculosis will not be admitted. All the larger cities of the country have these schools, and they are proving a success.

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The Board of Visitors of the Kentucky Institute for the Blind has elected Dr. Ben Carlos Frazier physician for the institute. He succeeds Dr. William Bailey, who died recently.

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Dr. J. M. McCormack, of Bowling Green, delivered an address on "Sanitation" before an audience of 200 teachers and health officials in the County Superintendent's office in the courthouse, December 9.

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Dr. Louis Frank, of Louisville, has returned from Washington, where he attended the Southern Surgical and Gynecological Association's Convention.

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Dr. G. B. Eager, of Louisville, addressed the Parent-Teachers' Association, of Longfellow School. The doctor delivered a very interesting lecture on "Thoughts on Education of Mothers."

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Dr. Thomas Dunlap, of Atlantic City, who has been visiting his parents, returned home.

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Dr. Barnett Owen, of Louisville, spent the Christmas holidays in Lexington, Ky.

Dr. H. B. Scott, of Louisville, has returned from Frankfort, where he was the guest of his parents.

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Dr. George Kearns, of Louisville, has returned from a short visit to Springfield, Ky.

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Dr. Gilbert Reynolds, of Paducah, spent the holidays in Louisville with friends.

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Dr. Alex Griswold, of Louisville, has returned from a month's vacation in New York and Connecticut.

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Dr. and Mrs. Harvey P. Barrett left last month for Charlotte, N. C., where they will locate.

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Dr. F. G. Aud, of Cecilian, left for Rochester, Minn., where he has accepted a position. He has been employed at the United States Marine Hospital in New York City.

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Dr. August Schachner, of Louisville, has returned from a visit to Washington and New York.

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Dr. Charles M. Garth, of Louisville, sails January 23rd. for Panama to be gone one month.

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Dr. H. H. Grant, of Louisville, has returned from Washington.

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Dr. J. H. Thayer, of South Carolina, spent a few weeks in Louisville.

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Dr. Jules L. Bierach, of Harlan, Ky., spent a few days in Louisville visiting his parents.



MARRIAGES.

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William S. Morris, M. D., to Miss Alma Womack, both of Oldtown, Greenup County, December 14.

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David E. Weller, M. D., to Miss Vanita A. Head, both of Louisville, December 20.

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Moorman Owen Robertson, M. D., to Miss L'Mee Lehman, both of Louisville, recently.

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DEATHS.

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David H. Coombs, M. D., Charleston, Ind., at his home, recently.

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Frank A. Clark, M. D., of Newport, at his home, October 24, following a surgical operation, aged 62.

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James Franklin Gaddie, M. D., formerly of Hardyville, Ky., at Grandy, Mo., December 7, of heart disease, aged 33.

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J. S. Dickson, M. D., of Trenton, at his home, December 25, aged 85.

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W. E. Shepherd, M. D., Taylorsville, Secretary of the Spencer County Board of Health, at his home, December 30, of pneumonia, aged 60.

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H. C. Hart, M. D., Winchester, at his home, December 12 of cardiac asthma, aged 72.

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O. A. Lett, M. D., Corydon, at his home, aged 46.

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George Meyers, M. D., Mt. Sterling, at his home, December 18, aged 90.

The American Red Cross desires again to invite attention to the exhibition in connection with the Ninth International Red Cross Conference, which will be held in Washington, D. C., from May 7 to 17, 1912.

The exhibition will be divided into two sections, which will be styled Marie Feodorovna and General. The former is a prize competition, with prizes aggregating 18,000 rubles, or approximately \$9,000, divided into nine prizes, one of 6,000 rubles, approximately \$3,000; two of 3,000 rubles each, and six of 1,000 rubles each.

The subjects of this competition are as follows:

1. A scheme for the removal of wounded from the battlefield with the minimum number of stretcher bearers.
2. Portable (surgeons') washstands, for use in the field.
3. The best method of packing dressings for use at first aid and dressing stations.
4. Wheeled stretchers.
5. Transport of stretchers on mule back.
6. Easily folding portable stretchers.
7. Transport of the wounded between warships and hospital ships, and the coast.
8. The best method of heating railway cars by a system independent of steam from the locomotive.
9. The best model of portable Roentgen apparatus, permitting utilization of X-rays on the battlefield and at first aid stations.

The maximum prize will be awarded to the best exhibit, irrespective of the subject, and so on.

The General Exhibit is again divided into two parts; the first will be an exhibition by the various Red Cross Associations of the world. The second will be devoted to exhibits by individuals or business houses of any articles having to do with the amelioration of the sufferings of sick and wounded in war, which are not covered by the Marie Feodorovna Prize Competition for the year. While the American Red Cross will be glad to have any articles pertaining to medical and surgical practice in the field, it is especially anxious to secure a full exhibit relating to preventive measures in campaign. Such articles will be classified as follows:

1. Apparatus for furnishing good water in the field.
2. Field apparatus for the disposal of wastes.

3. Shelter, such as portable huts, tents and the like, for hospital purposes.

4. Transport apparatus (to prevent the suffering of sick and wounded) exclusive of such apparatus as specified for the Marie Feodorovna Prize Competition.

As with the Marie Feodorovna Prize Competition, for this country only articles having the approval of the Central Committee of the American Red Cross will be accepted.

Diplomas will be awarded for exhibits in this section of the exhibition as approved and recommended by the jury.

Further information may be obtained from the Chairman, Exhibition Committee, American Red Cross, Washington, D. C.

It is perhaps to apparatus having to do with prevention of disease in armies that the energies of Americans have been specially directed since the Spanish-American War. Therefore, the last-mentioned section of the Exhibition should make an appeal to them.

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#### THE TEST OF A TONIC.

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The field and function of a systemic tonic is generally understood and appreciated by both physician and patient. To stimulate, whip or goad the vital processes is not to "tone," but, on the contrary, to ultimately depress. A real tonic is not a mere "pick-me-up," but some agent that adds genuine strength, force and vigor to the organism. The genuine tonic is a builder or reconstructor of both blood and tissue. Any agent which will increase the power of the blood to carry and distribute the life-giving oxygen is a tonic in the best and truest sense of the word. Iron in some form is an ideal tonic, as it builds up the vital red cells of the blood and the hemoglobin which is their essential oxygen-carrying element. Of all forms of iron, none is quite as generally acceptable and readily tolerable and assimilable as Pepto-Mangan (Gude). It creates appetite, tones up the absorbents, builds the blood, and thus is a real tonic and reconstructive of high order. It is especially desirable because of its freedom from irritant properties, and because it never causes a constipated habit.

### CALENDAR.

JEFFERSON COUNTY MEDICAL SOCIETY; meets in the "Ather-ton," January 8, 15, 22, 29.

DR. EDWARD SPEIDEL ..... President  
DR. HERBERT BRONNER ..... 1st Vice-President  
DR. ELMER L. HENDERSON ..... 2d Vice-President  
DR. C. H. HARRIS ..... Treasurer  
DR. A. C. LARKIN PERCEFULL ..... Secretary

LOUISVILLE CLINICAL SOCIETY; meets at the Galt House, January 9 and 23.

DR. J. M. MORRIS ..... President  
DR. G. B. JENKINS ..... Vice-President  
DR. ARGUS D. WILLMOTH ..... Treasurer  
DR. H. J. FARBACH ..... Secretary

LOUISVILLE SOCIETY OF MEDICINE; meets at the Tavern Club, January 4.

DR. EDW. B. RICHEY ..... President  
DR. E. L. HENDERSON ..... Vice-President  
DR. RICHARD T. YOE ..... Treasurer  
DR. W. O. GREEN ..... Secretary

LOUISVILLE SOCIETY OF PHYSICIANS AND SURGEONS; meets at the Tavern Club, January 18.

DR. A. R. BIZOT ..... President  
DR. JOS. L. SHAFER ..... Vice-President  
DR. A. I. PARSON ..... Treasurer  
DR. J. H. SIMPSON ..... Secretary

MEDICO-CHIRURGICAL SOCIETY; meets at the Tavern Club, January 12 and 26.

DR. C. SKINNER ..... President  
DR. JOHN J. MOREN ..... Vice-President  
DR. FRANK C. SIMPSON ..... Secretary and Treasurer

WEST END MEDICAL SOCIETY; meets at the Galt House, January 9.

DR. I. A. ARNOLD ..... President  
DR. H. L. READ ..... Vice-President  
DR. JOHN K. FREEMAN ..... Secretary and Treasurer

CLIFTON MEDICAL SOCIETY; meets First Thursday in each month.

DR. J. M. MORRIS ..... President  
DR. F. T. GRASSER ..... Vice-President  
DR. R. E. WILHOYTE ..... Secretary and Treasurer

AMERICAN MEDICAL ASSOCIATION; meets in Atlantic City, 1912.

KENTUCKY STATE MEDICAL ASSOCIATION; meets in Louisville, Ky., October, 1912.

KENTUCKY STATE HOMEOPATHIC SOCIETY; meets in Lexington, Ky., May, 1912.

MULDRAUGH HILL MEDICAL SOCIETY; meets in Elizabethtown, Ky., April, 1912.

KENTUCKY MIDLAND MEDICAL SOCIETY; meets in Paris, Ky., January 16, 1912.

SOUTHWESTERN MEDICAL ASSOCIATION; meets in Paducah, Ky., Second Tuesday in May, 1912.

AMERICAN PROCTOLOGIC SOCIETY; meets in Atlantic City, N. J., 1912. (Date later.)

KENTUCKY STATE ASSOCIATION OF RAILWAY SURGEONS; meets in Lexington, Ky., May 8, 9 and 10, 1912.

KENTUCKY ECLECTIC MEDICAL ASSOCIATION; meets in Louisville, May, 1912.

NATIONAL ECLECTIC MEDICAL ASSOCIATION; meets in Washington, D. C., June 18-21, 1912.

# THE American Practitioner and News.

"NEC TENUI PENNĀ."

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"Certainly it is excellent discipline for an author to feel that he must say all he has to say in the fewest possible words, or his reader is sure to skip them; and in the plainest possible words, or his reader will certainly misunderstand them. Generally, also, a downright fact may be told in a plain way; and we want downright facts at present more than anything else,"  
—RUSKIN.

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LEE KAHN, M. D. EDITOR IN CHIEF.

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## Editorials.

### A FAREWELL WITH AN INTRODUCTION.

With this issue, the AMERICAN PRACTITIONER AND NEWS, for forty-five years published in Louisville, Ky., passes to the ownership of John W. Wainwright, M. D., of New York City, where it will hereafter be published. We are sure that our subscribers and friends, many of years standing, will regret the transferring of the AMERICAN PRACTITIONER AND NEWS to another city, but it is not to be entirely lost to us of the South, in fact the new owner warmly expresses himself as anxious to maintain, in so far as he can, its prestige, and to serve its clientele and members of the medical profession of the South as well as elsewhere in the United States.

The journal will, under its new management, assume the character of a National Medical Monthly and thus its scope and influence, it is thought, will be broadened. Special effort will be made to give prominence to articles from and news to the Southern physician.

A few words referring to the new owner: Dr. Wainwright is a native of Louisville, Ky., having been born in this city, but has resided for the greater part of his life in the North—in New



York City, since 1888. He, however, speaks of and regards himself "a loyal son of Kentucky," has maintained his interest in and affiliations with his friends, many of whom he has in the South. Dr. Wainwright is a graduate of the Miami Medical College, Cincinnati, Ohio, now merged with the Ohio Medical in the University of Cincinnati. He has been identified with medicine and medical books as writer and editor for many years; has written largely on chemistry and particularly on therapeutics and materia medica; is also known as a writer of works outside of medicine and is or has been a member of numerous municipal, city, State and national associations, both of the strictly scientific and otherwise, including numerous national and international associations and congresses.

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#### A PLEA FOR PURER NEWSPAPERS.

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Since medicine has made such great strides in the last few years and since the curriculum of medical education has been made so extensive and difficult, that very few young men care to take up the study of medicine, the number of physicians has greatly decreased.

But the rapid advance and progress of medicine is not the real factor in decrease of number of physicians. The principal cause is the dissemination of popular knowledge of medicine among the laity. So many attacks have been and are made on the medical profession by the patented medicine men, quacks and leaders of Christian Science and other obscure faking cults, that the good done by the medical profession is under-estimated.

But if we should look at the continual striving of a single profession, whose members may be said to subsist by the prevalence of disease to educate unwilling masses to preserve their health, wealth and welfare by taking reasonable precaution, is indeed a matter for wonder. To what purpose is it that the medical men are trying to teach the elements of hygiene to the multitude? Their's are voices crying in the wilderness and will be so for many a long year to come unless the one means through which the public can be instructed—the daily press—recognizes its responsibility in these matters and sets to work on new lines accordingly.

As long as the newspapers and periodicals will lend its columns to fraudulent medical advertisements, advertisements which are filled with filth and indecency, they will hamper the progress of health and happiness. With the exception of a few newspapers and periodicals the majority of them appear to serve to increase the public ignorance in medical matters in regard to which it is really of the highest importance that they should be well informed. If one should peruse the daily papers you will always find sensational articles of "new discoveries," short notices of health-hints and other medical notices, that are really false and disgusting. Yet the laity takes them for facts. A reform in the newspapers in regard to medical matters is very necessary and let us hope that they will see their position and print only reliable news pertaining to public health.

M. L. R.

## Original Articles

### THE INFANT-FEEDING PROBLEM.

T. K. VANZANDT, M. D.,  
Louisville, Ky.

The last word has not been said about infant feeding; in fact our knowledge is still in a primitive state. What physician, who has seen the rosy cheeks begin to fade, the bright eye lose its lustre, the joyful yell turn to a feeble whine, and the plump little body get thinner day by day, has not said to himself: "Yes, it's the food problem again, but can it be solved?"

The fundamental principles of life, growth and development proceed according to certain fixed laws. The most important factor is nutrition. Our results depend upon our regard for these laws. Correct ideas pertaining to nutrition is a matter of prime importance, since nutrition deals directly with the question of life and death. Often the perilous first year decides the future health of the individual and the new-born infant has no choice in the matter. The lactating breast of the mother furnishes the necessary nutrition until growth and development has had a good start. If this ideal condition, always obtained if the lactating breast of the modern mother always furnished the right food at the right time, the urgent problem of infant feeding would be solved and the last word would have been said. There is no room for doubt that infants brought up on breast milk are stronger and

better able to remain in good health and resist disease than those who are artificially fed; for no infant food has ever been devised which is as satisfactory as good mother's-milk. Every drop is so precious that no infant should be deprived of it and wise is the physician who will insist upon breast feeding. Don't stop too quick. Remember that a derangement of mother's milk may be due to certain definite causes and that these may be easily remedied. Rotch has given us some rules for changing the ingredients in mother's milk that may be in place just here:

1. To increase total quantity: increase liquids, especially milk (malt-extract helpful) and encourage her to believe she will be able to nurse.

2. To decrease total quantity: decrease liquids.

3. To increase total solids: shorten nursing intervals, decrease exercise, decrease proportion of liquids, and increase proportion of solids.

4. To decrease total solids: lengthen nursing intervals, increase exercise, increase proportion of liquids.

5. To increase fats: increase proportion of meat in diet.

6. To decrease fats: decrease proportion of meat in diet.

7. To increase proteids: increase exercise up to the limit of fatigue.

When it becomes necessary to employ artificial feeding, there are two principles upon which it may be conducted:

1. To obtain a food by modifying cow's milk which corresponds as nearly as possible to the composition of average human milk.

2. To adapt the prepared milk to the needs of each particular infant as suggested by the state of its digestive organs, and existing nutrition and development.

The first method seeks to bring the child up to the standard of the milk, and the second to bring the milk to the standard of the child.

There are no hard and fast lines in infant-feeding other than that there must be an ample supply of such nourishment as the child can digest and thrive upon. Each case must be given individual consideration. Cow's milk, our best substitute, is just as unnatural a food for an infant as any other kind of milk or food, but we have learned from experience that it answers the purpose best because it contains the nearest approach to what is needed in available form. Success in substitute feeding depends upon our ability to supply in suitable form and the child's ability

to assimilate a food containing approximately the quantities of the nutritive elements found in human milk. Exact reproduction is impossible, but we can, at least, make the attempt. We are not forced to adopt proprietary foods because we are told very positively they are just the right thing. Our modern sanitary dairy, a decided forward step, now furnishes us with clean cow's milk. The same nutritive elements found in mother's milk, viz: fats, carbohydrates, proteids, mineral salts and water, are also found in clean cow's milk, but in different proportions. Therefore, our effort is to change these proportions to approach as nearly as possible those of mother's milk. This is no easy matter. By analyzing many specimens of human milk we have learned what proportions of the nutritional elements the normal child requires at the different stages of its growth and development. With this as our guide we prepare the substitute. We feed by schedule, but the schedule is only a general guide and is not to be followed blindly. Success means daily attention to details. Feed properly every day in the year. Feed at definite times and at no other. Sleeping should not interfere with the nursing hour. A pair of scales should be in every home and the weight taken weekly during the entire first year.

A point never to be lost sight of is the desirability of keeping the gastro-enteric tract in the best possible condition. The doctor should give instructions about the amount, the intervals, etc., of feeding. Mothers seldom know what is best for their infants in these matters. It has been asserted that overfeeding kills more babies than starvation and it certainly is responsible for a large proportion of the ailments of early infancy. Especially is this true in summer when fretfulness of the child is often mistaken for hunger.

Do not give medicine when the quality or quantity of food is deficient; remedy the food first. The artificially fed infant will very quickly show signs of successful or unsuccessful feeding, and their early recognition and meaning by both mother and doctor is of importance.

(A) Signs of successful feeding:

1. Gain of 4 to 8 ounces weekly.
2. Satisfied at completion of nursing when supply is ample and of good quality and given at proper intervals; infant ready for next feeding when time arrives.
3. Stools yellow and 2 or 3 daily.

(B) Signs of unsuccessful feeding (disproportion of elements):

1. High Fats—Diarrhoea with green, watery stools, infant strains a great deal, regurgitation or vomiting of sour material.

2. Low Fats—Means deficient nourishment and may cause constipation.

3. Sugar—Rarely causes trouble. Green stools sometimes from excess.

4. High Proteids—Colic or constipation; curds in stools, passage of which always accompanied by a great deal of gas.

5. Low Proteids—Nutritional disorders.

6. Stationary weight or loss in weight with a dissatisfied child means defects in quantity.

7. Excess of good milk may cause vomiting or regurgitation, perhaps with colic, shortening or lengthening nursing periods often helps.

(C) Signs of insufficient feeding:

1. Nurses long time.

2. Restless and uncomfortable afterwards.

3. In short time very hungry and demands frequent nursings day and night.

(D) Indications for special modifications:

1. Flatulence and habitual colic. Also curds in stools—difficulty in digestion of proteids; either proteids too high or child has feeble digestion as regards proteids.

Remedy—

(a) Reduce proportion of proteids.

(b) Partly predigested proteids.

(c) Add farinaceous substances to milk which aid proteid digestion.

2. Vomiting—(a) If shortly after feeding, reduce quantity or frequency of feeding or both.

(b) If an hour or so after feeding, due to too much fat.

3. Loss of Appetite—

(a) Longer intervals.

(b) Smaller quantity.

(c) More dilute food, particularly the fat, means feeble digestion.

4. Constipation—

(a) Increase proportion of all ingredients.

(b) Increase percentage of fat.

(c) Bad habits often responsible.



5. Diarrhoea—A diarrhoea which has as a cause simply a wrong proportion in the food is very rare. Frequent, almost normal movements may be due to too high fat. Generally due to acute or subacute indigestion in the intestines.

6. Failure to Gain in Weight—This symptom in a child with a good appetite and good digestion means insufficient nourishment.

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## HISTORY OF THE TUBERCULOSIS MOVEMENT IN LOUISVILLE, JEFFERSON COUNTY, KY.\*

DUNNING S. WILSON, M. D.,  
Louisville, Ky.

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Though many details of the tuberculosis movement have been unnecessarily omitted, the general situation has been dealt with at sufficient length to bring our story from the beginning of the movement, down to the present time, and this concluding article will bear directly on what we are doing or attempting to do at present.

### WAVERLY HILL.

Since December, 1910, certain phases of the work have been inaugurated. One of the first arrangement which was made was to secure the services of a resident dentist and under his supervision the teeth of the patients are inspected and such repairs, as are necessary, are made, instruction is given as to the proper care of the mouth and teeth, and in this way the general health of the patient is improved.

The Training School for nurses has taken on a very healthy growth and before the end of this year we will be turning out graduates who, besides the general medical training, are thoroughly proficient in all branches of the tuberculosis nurse work. During their term of service as pupil nurses, they are on duty at Waverly Hill in the Sanatorium for early cases and in the Hospital for advanced cases. They are also detailed for duty at the Association Sanatorium at Hazelwood, where the construction of the buildings are different from those at Waverly Hill.

Besides this they serve at the Dispensary and are taught the methods of conducting a Dispensary in a large city, coming in

\* Written for this Journal.

contact with patients in their homes and learning to appreciate the necessity for co-operation between all of the charitable institutions and agencies.

#### OPEN AIR SCHOOL.

Examination of members of families, brought to our notice a number of children who were suffering from tuberculosis, and in order that they might be given the opportunity to get well, they were sent to the Sanatorium. This meant a loss of time from their studies, so arrangements were made whereby an open air school was started, having a Normal School graduate as teacher.

The children are under her care and it is found that they may "take the cure" and at the same time not fall behind in their studies. The children themselves are delighted with the School and with one-third of the time usually devoted to their studies, are accomplishing nearly twice as much work.

This Spring a permanent Hospital for the treatment of advanced cases will be built with every facility for providing treatment and medical attention to that unfortunate class of cases to whom we can offer very little in the way of cure, and yet, because of their condition, should be cared for and isolated.

This isolation means so much to the general public, as one advanced case is usually responsible for from two to four other cases.

The holiday season at the Sanatorium is made as enjoyable as possible, entertainments being given for their benefit and all members of the household working to give pleasure at this time. The Indoor Art Committee of the Outdoor Art League, through their chairman, Miss Carolyn Leech, sent a beautiful picture to each patient at the Sanatorium and many friends of the institution contributed towards making the Yule-tide season one of joy and helpfulness.

#### ASSOCIATION SANATORIUM.

The Association Sanatorium at Hazelwood, which takes patients in the earlier stages of the disease who are able to pay the small fee of \$10.50 a week, provides for persons who are in very moderate circumstances, every facility for taking the cure at a small expense which does not, by any means, cover the actual cost of maintenance and treatment.

As the institution at Waverley Hill only takes care of persons who are unable to pay and who are residents of Louisville or

Jefferson County, the Association Sanatorium provides an opportunity for persons in any part of the State to take treatment which would otherwise be denied them.

This institution has been in existence since September 9, 1907, and its work has served and will continue to serve as an inspiration to all persons interested in the tuberculosis movement.

The men who comprise this board are men of unquestioned integrity and a number of them have given large contributions from their private means to carry it on. These gentlemen are even now preparing to raise sufficient funds to build a Hospital where advanced cases can be cared for on the same grounds, but some distance away from the cottages which are now housing the early cases.

Since the establishment of the Association Sanatorium at Hazelwood patients have been restored to health and have spread the glad tidings that *tuberculosis is curable in Kentucky*. It goes without saying that some have died since leaving the institution, but the cases that have died have been advanced cases which should not have been admitted, but which were admitted because there was no other place in the State where they could find refuge.

#### DISPENSARY.

The Tuberculosis Dispensary, one of the most important factors in the Anti-Tuberculosis Movement, is doing magnificent work. Though there are only five nurses on the visiting nurses' staff, and one of these is detailed for duty in the county, the work is being done as thoroughly as the many demands upon them will permit.

Last year 2576 patients visited the Dispensary, 810 of which were new cases. The nurses made 8,467 visits into the homes of patients.

When we realize that the nurse gives baths, puts on surgical dressings, supervises the cleaning of rooms, etc., it is difficult to understand how work is accomplished with so few nurses, and with an average of 400 patients under their care.

It is the constant effort of everyone connected with the tuberculosis movement to co-operate in every way with all of the charitable organizations in the community, and unless this is done, the tuberculosis movement falls short of its purpose.

The Dispensary of a city soon becomes the clearing house for all matters relating to tuberculosis, and it is absolutely essential

that the closest harmony be preserved in its relationship to every public welfare movement.

The situation, as we have it in Louisville and Jefferson County, seems to me to be the most practical that exists any place.

The Association Sanatorium where patients in moderate circumstances pay a reasonable sum which does not entirely cover the cost of maintenance, the deficit each year being made up by public subscriptions and a small appropriation from the State.

The Waverly Hill Sanatorium supported by the city and county taxes and admitting poor persons only, without any charges, who are residents of Louisville and Jefferson County.

The Board of Tuberculosis Hospital Dispensary, where patients may be examined, placed on the list for admission to either Sanatorium, depending upon their financial condition and where the visiting nurses of the Dispensary visit the homes of persons suffering from tuberculosis, teaching them how to take care of themselves and how to protect others from infection.

If such a plan is carried out in every community, the means for practical illustration, which, after all, is a most forceful factor in any educational movement, will be best served.

If in connection with the afore-mentioned agencies the general education of the public in the prevention of tuberculosis and in the prevention of disease of any character is carried out, we have a solid phalanx which, speaking in a military sense, is absolutely impregnable.

The work that is being done in Louisville and Jefferson County is serving to stimulate similar efforts in the cities, towns and communities throughout the State. The persons most interested in the anti-tuberculosis movement in Louisville, have set for themselves a very high standard and it is their constant endeavor to increase the efficiency of their work.

This history would, indeed, be incomplete did I not pay more than a passing tribute to the untiring and magnificent work of Mr. W. C. Nones. He has been the standard-bearer. He has borne the brunt of the battle, and though he has had many noble comrades, it has been Mr. Nones who constantly inspired them when discouragement, caused by the many obstacles, made them feel like surrendering.

Some men prefer to make a great success in the financial world, some men seek professional honors, but Mr. Nones, without thought of honors or fame, has builded better than he knew.

The anti-tuberculosis movement in Louisville,—yes, I may say in Kentucky—will serve as a monument to him, and will ever remind us that true citizenship in this Commonwealth depends not upon mere financial success, but upon the efforts which a man puts forth towards benefiting his fellow-men.

As this goes to the printer, the Administration Building of the Association Sanatorium was burned to the ground, and terrible as the loss is, our constant hope is that a modern structure will rise, phoenix-like, at the site of the old ruin.

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#### URIC ACID.

H. A. COTTELL, M. D.,  
Louisville, Ky.

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The greatest non-microbial tormentor of mankind is uric acid, and it is certain that no proximate principle of the animal body has been submitted to so much study at the bed-side and in the laboratory, with so varying results, and with such confusion of opinion among the masters, as to its rank and place as a factor in disease. Between Graham Lusk who, barely allows it to be the cause of gout (saying, "it is not even known whether the disease is due to an increased formation or an increased retention of uric acid in the system"), to Dr. Haig who insists that it is responsible not only for all gouty and rheumatic derangements of the body, but is the chief morbid factor in migraine, in Bright's disease, in Reynaud's disease, in pneumonia, in diabetes mellitus, in hysteria, in many of the insanities whether structural or lesional, we have all sorts of opinions held by all sorts of men.\*

In Haig's eye it is an ubiquitous Somatic fiend visiting and deranging every organ of the body, and is to be restrained or exorcised only by a diet as meager and thin that an Anchorite would pale to contemplate it. Dr. Haig is an extremist doubtless; but he has done good service to mankind by calling attention to the fact that uric acid is responsible for a good number of

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\*GOUT INSANITY.: At the Int. Nat. Congress, London, Dr. Raynor supports the following conclusions:

- (1) Protracted gouty toxæmia, when not very intense, results in sensory hallucinations or melancholia.
- (2) Sudden intense toxæmia results in mania or epilepsy.
- (3) Intense and protracted toxæmia results in general paralysis.
- (4) If there is a tendency to vascular degeneration from plumbism, alcoholism, etc., varying degrees of dementia are produced.

Drs. Savage and Crichton Browne agreed that gout could produce insanity, the latter qualifying by the statement, "only where there is hereditary predisposition to insanity." Pepper, 1893.



acute irregular disturbances of the system. Let me report a few cases to the point:

Case No. 1, B. C. Female, aged 80, when I called I found the patient in semi-coma, and almost moribund. Her family was expecting a fatal result in a short time, and I joined in the expectation. The tongue was heavily furred, the pulse was small, thready, and intermittent, the temperature was about three degrees in fever, I was shown a specimen of the patient's urine, by a young woman present, who remarked that it was full of blood. A glance was sufficient to show that it was almost semi-solid with lateritious sediment. I am almost sure, though I did not make a quantitative test that the amount must have far exceeded Landois' maximum, which is 2 grams to the 24 hour urine. Acting upon this condition I prescribed a brisk purgative, to be followed by uric acid eliminatives. The result was a rapid disappearance of symptoms with a clearing up of the urine and recovery of the patient.

Case 2, A. B. A lady of 70 years and upward. The symptoms were fever, fugitive pains in the back, head and limbs, with mental hebetude, and great prostration. The urine was overloaded with acid amorphous urates. In this case Salicylate of Sodium with acetate of potassium gave prompt relief of symptoms as the urine cleared up.

Case 3, Mc. J., aged 50, occupation a switchman. Taken suddenly sick one night on returning from work. I saw him next morning. His symptoms were nausea, and vomiting, with pains running up the back, not increased by movement. There was considerable prostration. His temperature was about 100 F., the pulse was tense and about 90 to the minute. I took the case to be acute indigestion, grip, or "don't know what," and prescribed calomel with bicarbonate of sodium, and oxalate of cerium, to be followed with quinine, salol and phenacetin. On my visit next day, I found the patient relieved of the nausea and fever, but still in pain and too weak to get up. I was about to make a prognosis of slow convalescence a la grippe, when his wife brought in the urinal, the contents of which she showed me, with the remark that her husband must have kidney disease, as the urine was thick with blood. This urine, like the others, was loaded with precipitated acid amorphous urates, and uric acid. A course of uric acid eliminatives running through four or five days cleared up the urine and put the patient on his feet.

Case 4, Mrs. W. A. G., aged 46. She was obese and in-

dolent in her habits. She indulged freely in animal food and was, at times, addicted to alcoholic drinks. She was nervous and insomniac, for the relief of which she resorted to chloral, paraldehyde, and bromide of potassium, being often in a state of stupor from the influence of these drugs. Her husband, who was a railroader, returning from a trip of several days' duration, found her one morning in a semi-coma, and called me to see her. She presented a somewhat livid countenance, heavy breathing, a pulse of high arterial tension, and a temperature of 101 F. On rousing her from sleep, she showed mental confusion, with delusion as to her place of residence and the identity of her physician and members of her family. The patient continued in this state for about two weeks, gradually sinking into profound coma, and dying, apparently, of uremia. During the entire period of her illness her urine, which was but slightly albuminous, and never showed renal derivatives in the sediment, was loaded with acid amorphous urates. In treatment, I restored to purgation, diaphoresis and diuresis, giving uric acid eliminatives without stint from the beginning to near the end of the attack, but did not note any reduction in the amount of uric acid daily eliminated. Though this attack was undoubtedly precipitated by a debauch in that proprietary medicine called "bromidia," I am convinced that the fatal issue was due to the inability of the system to rid itself of its excess of uric acid. In short, that death in this case was due to lithaemia, rather than uremia.

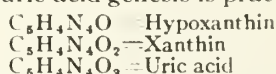
Case 5, S. W., widow, aged 70. Had suffered for years with outbreacking gout, cystitis, and lastly interstitial nephritis. She died at the close of a six weeks' attack of gout, in which diarrhoea with symptoms of indigestion was a prominent symptom, the urine being always loaded with acid urates. Throughout the coma with convulsions, which ended her life, her temperature was pyretic, or hyperpyretic, which threw doubt upon the hypothesis that her death was due to the uremia of Bright's disease. Was uric acid, in this case, the fatal factor?

Case 6, B. S. J., aged 38. Was a heavy eater and habitual drinker of alcoholic liquors during the fifteen years of my acquaintance with him. He seemed to be in fine health, and had never in his life been seriously ill. In early October, during an abnormal cold spell, he went on a fishing tour, took a deep cold, and came home ailing, but continued to attend to his business. In a few days, however, he was forced to bed. I found him suffering with fever, acute bronchitis, cough, fugitive pains in

back and limbs. He was very nervous and insomniac. The urine, which was non-albuminous, was loaded with acid amorphous urates, and later presented bile in quantity. The patient, however, was not jaundiced. Soon there followed gastric disturbances, and the liver became enlarged and very painful. A diagnosis of acute hepatitis was made. Measures of treatment among which uric acid eliminatives played an important part, were instituted, the patient, in a few days, feeling so much better that he was, with difficulty, kept at home. The bile almost disappeared from the urine, but the urates continued to be excreted in great excess. On the fifth day he was feeling so well that, at the patient's suggestion, I did not visit him. (I learned afterward that he had suspended treatment.) But on the next day I was urged to call in a hurry. I found him in mental habitude, and rapidly sinking into coma, in which he died in about 36 hours from this access of the disease. The urine was much diminished in quantity, not suppressed.

The toxæmia in this case might have been caused by cholestæmia, or perhaps the toxins of microbial proliferation; but I shall always believe that lithæmia precipitated the fatal issue. As long as the patient kept up the antilithic medicines his condition improved, when he left them off, he went into coma and died.

The chemistry of uric acid genesis is practical and interesting.



Horbaczewski derives uric acid from the nuclein of the cells.

Emil Fisher (1899) discovered *Purin*, the base of the uric acid series of compounds.



All true nucleins yield one or more of the purin bases." "Nucleins are a combination of nucleic acid and a proteid, except the nuclein from spermatozoa, in which the acid combines with protanin."

The cleavage of Nuclein is, viz:

Nuclein	
Proteid	Nucleic acid
	<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;">Phosphoric acid</div> <div style="width: 55%;">           Acenin            Guanin            Xanthin            Hypoxanthin            Uric acid is derived from                these by oxidation.         </div> </div>

Nucleo-proteids or nucleo-albumins consist of two groups:

Nucleo-proteids . . . .	{	1 Those yielding para-nuclein . . . . .	{	Casein
				Pyin
				Vitellin
	{	2 Those yielding true nuclein . . . . .	{	Nucleo-histon
				Cell-nuclein

Nucleo-proteids of the first group yield on physiologico-chemical splitting (to-wit: peptic digestion) phosphorized albumosis from which para nuclein is split. This cleavage is followed by the further digestion of the albumose, and the gradual solution of the para-nuclein.

Nucleo-proteids of the second group under peptic digestion break up into a proteid, which is converted into the peptones and nucleic acid, which on further cleavage (as above indicated) goes into the purin bases and their oxidation products: adenin, guanin, xanthin, hypoxanthin and, lastly, uric acid.

The practical deduction from these considerations is that foods, like eggs, milk, cheese; and perhaps the majority of vegetable foods do not tend to produce the uric acid diathesis, while the muscles, and particularly the glands of the animals which we eat, though highly nutritious in the digestible proteids which they yield on physiological splitting, produces a bi—, or decomposition products the purin bases, which, being readily absorbed into the circulation, oxidize into uric acid, promoting or determining the uric acid diathesis. It is pertinent here to note that those glands of animals, viz., the thymus, the pancreas, the spleen, and the lymphatic glands, especially those that are rich in lymphoid elements, with the leucocytes of the blood, and the lymphocytes of the glands that produce them, are all conducive to the establishment of the gouty diathesis in those who indulge in animal food. And this is particularly true then of such food delicacies as sweetbreads, lambfries, mountain oysters, blood puddings (perhaps brains), and particularly tea, coffee and cocoa. The alkaloids of these popular drinks are theophyllin, caffeine and theobromine, and they form a group of methyl dioxypurins, which on being ingested, are rapidly absorbed into the blood, where they are soon oxidized into uric acid. The viand known as sweetbread, which is the thymus (sometimes the pancreas) of the calf, should be especially expurgated from the diet of the gouty, since it is made up almost entirely of lymphoid tissue and is therefore most promotive of the uric acid diathesis. It is a matter of physio-

logical experiment that the feeding of thymus to an animal will be followed in a short time by a marked increase in the amount of uric acid excreted by him.

The normal amount of uric acid in the daily urine is 0.7 grams ( $10\frac{1}{2}$  grains), of purin bases 0.1325 grams (grains  $19\frac{1}{2}$ ). These purin bases would seem not to be all oxidized into uric acid, though they do go into adenin, guanin, hypoxanthin and xanthin, of which uric acid is the final product. The relationship of uric acid to oxalate of lime might be discussed with profit at this point. Every urologist notes the frequent association of the former with the latter in urine sediments, while their association in gouty tophi and in urinary calculi is so common as to suggest a chemical relationship between uric and oxalic acids.

Uric acid is known under the action of some reagents to split into urea and oxalic acid, and it is not improbable that oxaluria is one of the chemical bi-plays of nuclein destructive metabolism. The clinician, therefore, who finds oxaluria and lithaemia combined in any given case, is, under the dietic regimen now in vogue, presented with a dilemma. He must forbid the patient all saccharine and amylaceous foods to meet the first condition, and all nitrogenous foods to meet the second. In which case to be scientifically consistent, he would force the unfortunate person to live on fat, water and air.

Lastly, the treatment of the uric acid diathesis may well claim our careful attention.

Piperazin and urotropin are of but little if of any value. So also quinic acid and its various compounds: urosin, chinotropin and sedonal. So little piperazin escapes into the urine after administration that it has been well doubted if it has any solvent action on uric acid there, and probably none in the blood and tissues. While quinic acid and compounds, in the opinion of Cushing, have no effect whatever on the amount of uric acid excreted.

Urotropin, by partly breaking up into formaldehyde, is a valuable urine disinfectant and puricide (pus microbe killer), but it dissolves uric acid slowly and poorly in the urine, if at all. And since it can act only in an acid medium can have no solvent effect on the agent in the blood.

With one exception, the treatment of lithaemia and lithatosis, is as it was in the days of Sydenham, the remedies being colchicum, alkalies and dietetics; but thanks to Haig, sodium salicylate has proved to be an agent of signal value in the solution and elimination of uric acid.

Louisville, Ky.



## NEW LIGHTS FOR OLD.

M. L. RAVITCH, M. D.,  
Louisville, Ky.

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Such an excitement was created all over the world about two years ago, by the discovery of "606" by Ehrlich, as a true cure for syphilis, that the medical as well as the lay press reported wonderful miracles by the thousands. One great New York paper last year stated the "residue" of that chemical "606" will drive away any imaginable ill from the human body. The human mind is very easily excited. People seem to like sensation; it is almost a mental food for them. Hence, sensationalism will live and thrive.

"Salvarsan," as Ehrlich calls his patented arsenical preparation, has been used extensively, but is now being used very little and cautiously in Europe and in this country. The desire to use a new remedy which will cure a disease that takes years to treat, with only one hypodermic "shot," has led a good many physicians to indiscriminate and reckless practice. Already, many reports have come in of the serious accidents and fatalities following its use.

Dr. William Allen Pusey, formerly of this city, and now of Chicago, and one of the best authorities on venereal diseases, warned the medical profession of the danger of this new remedy and said in the *Journal of the American Medical Association* for January 14, 1911: "It will be very fortunate if we don't have another therapeutic fiasco like that following the announcement of Koch's Tuberculine in which a valuable remedy failed to come up to first expectations and, thereby, caused disappointment from which it did not recover for ten years. For, in the excitement of "606" we are apparently remembering only that it was introduced to cure syphilis and are therefore assuming that it will cure it, and are not taking heed of the fact that experience already is showing that it is not doing it."

I fully agree with Dr. Pusey and do not believe that "Salvarsan" will be a positive cure in all cases. Arsenic has been known centuries ago to possess curative properties in syphilis and this remedy is as old as mercury. Arsenic has been known and used way before Christ, by the Jews and other Oriental people.

New Lights for Old Ones, have been utilized quite often. A decade or so ago organo-therapy came in vogue and its uses were

limitless. Desiccated extracts of certain glands of animals were used, and the therapeutic claims made for them, were the most exaggerated. Just a few years ago certain digestive enzymes such as pepsin and trypsin were acclaimed as a positive cure for cancer. Certain fermented goods, such as buttermilk, were to cure every ailment under the sun, and make old people young. And the ductless glands? Why, extraordinary claims were made only a few months ago for the ductless glands by a German professor. And now it is the pituitary body.

Old Lights with New Shades were constantly brought forward as new. The most sensational theory that was ever brought before the public several years ago, was the discovery of radium. This valuable metal was reputed to possess the most wonderful therapeutic properties. It was found not only to possess therapeutical properties, but it was found that it could be transmuted into another metal—helium. I really don't see any difference between the scientists of today and the alchemists of old. The alchemists of old were to me no more enthusiastic than the scientists of today. They were greatly hampered by the medieval clergy, and their works destroyed.

All who followed the course pursued by investigators of the wonders of radium, must have been impressed by the thought that in the conversion of radium into helium is a realization, in a way, of some of the dreams of the alchemists.

The analogy is not perfect, but there is sufficient similarity to make it certain that, had Sir William Ramsey and Madam Curie lived in the medieval days, they would have had the whole of the civilized world at their feet, and, in the end, would probably have finished up by being burned at the stake as sorcerers. Sir William Ramsey has brought us nearer to the transmutation of one element into another than any man has done before. Not that he is the first to have credit for such a performance.

There is a whole world of literature of alchemy. Thousands of volumes of it all scattered about Europe, and in most of the treatises will be found the assurance that the author, after a life-long trial, succeeded in converting lead into gold. But there never has been a clearer exposition of the means alleged to have been engaged. Each discoverer was too considerate for the currency to give a secret which would render gold valueless. The history of alchemy includes the story of some of the greatest villains

that ever lived. In it, too, are comprehended chance discoveries which have been of inestimable benefit to the world.

Your candid genius of today confesses how deeply indebted he is to antiquity for his knowledge. We need not be reminded that the new turbine steamer, which is to revolutionize ocean travels, had its fore-runner in a toy made by Hero, and a pupil of Cteribius, who, himself, devised the force-pump and innumerable hydraulic and pneumatic devices; that the hot-air engine was also constructed by the same Hero,—all these two thousand years ago. Archemides, by way of recreation more than serious pursuit, invented burning mirrors, which stopped but one step short of being a telescope; and perhaps, the burning mirrors were the Finsen lamps of today. More than two thousand years ago he solved the problem of specific gravity, declared the earth round, and proposed the Copernican astronomical system 1700 years before Copernicus was born. Not the maddest of the alchemists failed to contribute to the accepted knowledge of today. Some of their discoveries were of importance. Geber stumbled during his quest for the impossible upon corrosive sublimate, red oxide of mercury, nitric acid and nitrate of silver. Roger Bacon failed to locate the philosophers' stone, but he discovered gunpowder and invented a magnifying glass. In the same pursuit Vanhelmuth ascertained the property of gas, while Paracelsus, maddest and wisest of them at intervals, when he was not describing his process for creating life by elements of his own compound, gave us medicinal properties of supreme value. But on the other side of the account is a heavy score; having ruined themselves the alchemists managed to ruin all with whom they came in contact—from kings and princes to the humblest confiding ones. Gilles de Rays, who had wasted a princely fortune, sought to renew his patrimony by sacrifices to the devil and of the hundred children he murdered, several were traced to this end.

It is equally believed that Edward II employed Raymond Lalls to transmute lead into gold for him. Six million is the sum mentioned as his profit from the transaction. A more likely explanation is that the soothsayer had an eye for fiscal possibilities and raised a sum for his royal patron by a tax on wool. Henry IV feared and disliked alchemists, and passed the strictest act on record, prohibiting their multiplying gold and silver. This, Henry VI carefully annulled by an act which replaced its predecessors and authorized payment of all public debts. European sovereigns were gulled in the same way; so, too, were the Ori-

ental from almost the earliest days, which we have record. The alchemists, indeed, claimed Moses as one of the High Priests of the Script, and their faith is not dead. Here and there in China, Hindustan, Persia, Tartary, Egypt and Arabia are descendants of the men whose calling Bacon pronounced extinct.

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### EARLY DIAGNOSIS OF TUBERCULOSIS.\*

RICHARD T. YOE, M. D.,  
Louisville, Ky.

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You will pardon me for bringing so trite a subject as tuberculosis before you, but know you will be fully repaid in the discussion. Phthisis or tuberculosis is the term used to designate a disease characterized by progressive wasting of the body, persistent cough, with expectoration of opaque matter and sometimes of blood, loss of color and strength, hectic fever, shortness of breath, night sweats and diarrhoea, these symptoms being associated with certain well marked pathological changes in the lungs, namely, the formation of consolidation in a granular or diffuse form, associated with the presence and irritating influence of an organism, the bacillus tuberculosis. The nature of tubercle has long been a subject of discussion. In the 16th century two forms of tubercle (scirrhus and caseous) were recognized, showing at this early period of a distinction which had been drawn between gray and yellow tubercle. Later on the similarity of the changes occurring in the tubercular masses to the softening or scrofulous glands led Portal to conclude that tubercles were engorged lymphatic glands situated at different parts of the lungs, the engorgement terminating in suppuration. Lannae applied the term tubercle to miliary and yellow granulation, as well as to gray and yellow infiltration, but considered that it was unconnected with inflammation. Broussais, Andrae, and Conveilhaire assigned an inflammatory origin to tubercle, the latter considering that tubercle is the result of chronic inflammation of the lungs, but it was left to the great Koch, in 1882, to discover a specific organism, the bacillus tuberculosis, as the cause of tuberculosis, so we must class it as a germ disease. There is no part of the system that is free from attacks of this germ. The influence of heredity as a cause of phthisis cannot be doubted; it has been abundantly proven by observation and experience, both

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\*Read before the Louisville Society of Medicine.

in man and the lower animals. The term family predisposition is substituted for hereditary predisposition because the latter from its limitation to direct descent necessitates the omission of the evidence of disease in collateral relatives. Family predisposition is more common among women than men, and the transmission is greater through the mother than the father, but the child that resembles the parent who has the disease is more liable to have it than the others, but it is not at all necessary for the parents to have it for the children to be attacked with the disease, for anything that will lower the vitality of the system will allow the germ to find a lodging place, and this is most frequently found in the lungs. Some of these causes are mental depression, working in shops that are overheated, great amounts of dust, poor ventilation, miscarriages, unfavorable confinements, worry, climates, infection from kissing, inhaling the breath of affected persons, spitting on floors and sidewalks, allowing the sputum to dry, and inhaling the dust containing the germs, and scores of other causes. We have a thickening of the alveolar wall by a small celled lymphoid tissue consisting of minute cells, not larger than a leucocyte, separated from each other by a very delicate reticulum. This growth aims to commence in the walls of the alveoli and terminal bronchi, in the form of a few lymphoid cells, the net-work appearing later, and has been termed by Sanderson to be a hyperplasia of the adenoid tissue already existing in the lungs, for it must be borne in mind that lymphatic and lymphoid tissue are largely present in these organs, and that the alveolar wall is considered one of the densest lymphatic plexuses of the whole body. The existence of the delicate reticulum is denied by Carnil and by Watson Chyne, the latter ascribing the appearances to infiltration of the fibrous tissue around with leucocytes. The small cell tissue spreads rapidly through the alveoli, invading the walls of the capillaries of the peribronchial and perivascular sheaths, diminishing by pressure the calibre of the vessels and in time obliterating them and thus giving rise to microbiosis by causation and ulceration of the surrounding tissue. The bronchi show in many cases, catarrh of the mucous membrane, giving rise to a richly cellular secretion which forms the greater proportion of the expectoration of phthisis as the principal lesion and extending in acute cases throughout the whole bronchial tree.

It is more than probable that in most cases of consumption the germ reaches the lungs through inhalation and the apex is



the part that is most frequently attacked and some of the best observers say the posterior portion of the apex is first attacked and then passing over to the anterior portion; this is possibly explained by that portion of the lungs being less expanded on inspiration. This being the case I wish to call your attention to an old mode of examination being applied in a new way; this is palpation; either stand in front of your patient or back (he sitting) and hold the fingers (both hands) in a perpendicular position, pressing back and well down behind the clavicle, having your patient to take a deep inspiration and if there is the slightest inflammation at the apex you will be able to detect it in this manner before you can in either by auscultation or percussion, and with the other symptoms of your patient you know you have the beginning of tuberculosis long before you will be able to get enough secretion to examine with the microscope. It is very necessary for one to examine a normal chest sufficiently to know when he has normal expansion or an inflamed apex. Put your patient on proper treatment and you will soon have him well. I have never seen this mode of examination mentioned in any book on physical examination or medicine, but I have used it for more than twenty years, have recognized scores of cases of phthisis in the earliest stage and they have gotten well. I have always tried to impress on the student the necessity of this mode in all their examination of the lungs.

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### **Selected Articles.**

#### **THE RELATION OF THE PHARMACOPOEIA TO THE PRACTICE OF MEDICINE.**

SOLOMON SOLIS-COHEN, M. D.,  
Philadelphia, Pa.

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I accepted gladly the invitation to address you today; not only because of my esteem for your association and its aims; not only because of my very delightful recollections of a previous meeting at which I was privileged to be your guest; and not only because of the pleasure I have anticipated in meeting again so many of my friends and co-laborers in the work of upbuilding a scientific and ethical profession of pharmacy, auxiliary to a scientific and ethical profession of medicine; but also, and chiefly, because I have interpreted the invitation, coming to me

at this time, as an evidence of your lively interest in a public work in which I have the honor of taking part, and which can only be brought to a successful issue by the intelligent and cordial co-operation of physicians and pharmacists—the ninth revision of the *Pharmacopoeia of the United States*. It is probably unnecessary—yet to avoid any misunderstanding, here or elsewhere, it may be as well—to say that I cannot assume to speak officially. I am not here as a commissioned representative of the medical profession, or as the authorized mouthpiece of the revision committee; nor even as the delegated spokesman for that sub-committee of which I am chairman. Whatever I may say is, therefore, to be received as a personal utterance for which no one but myself is responsible. Although “unofficial,” however, my remarks are not necessarily to be taken as “disapproved.” I would not have you infer that I am about to put forth views at variance with those of my colleagues in general—or in particular. On the contrary, if I may judge from the discussions thus far had, all that I shall say concerning the pharmacopoeia would meet with the approval of nearly every member of the committee of revision, and nearly everything that I have in mind to say here on any topic would be approved by all the members.

Your programme states that I am to speak to you upon the Scope of the Pharmacopoeia—and such, indeed, was the request of your president and council. But in my reply to their courteous invitation—which unfortunately reached the secretary too late for the necessary change—I asked permission to talk to you, instead, upon—The Relation of the Pharmacopoeia to the Practice of Medicine. That, naturally, includes some consideration of the scope of the pharmacopoeia; but I have not thought it wise at this juncture, or until the work of the revision committee has been completed, to devote myself specially or exclusively to the matter of scope.

Nor is it my place to report on the work thus far accomplished. “An elder and a better soldier” is commissioned to do that; and I think you will be pleased to hear both him and his message—the purport of which, indeed, he has already indicated. I refer, of course, to Professor Joseph P. Remington. It will not, however, be overstepping the bounds of propriety if I pay tribute, in passing, to the earnestness and sincerity of all who are taking part in this great work, and emphasize their singleness of desire to reach the wisest conclusions upon the many difficult questions presented. Nor can it be deemed out of place if I take

this opportunity to express publicly my appreciation of the work of my colleagues—my helpful, patient and hardworking colleagues—of the subcommittee on scope. That they brought to their task learning and zeal goes without saying; but no one who has not participated therein can realize the enormous amount of time and labor that they have unselfishly devoted to it. It may be that some of us did not ourselves realize the full extent of the work when we so gaily accepted our assignments, or we might have hesitated before taking this burden upon our shoulders. However, the work has gone on; and it has gone on harmoniously.

I do not mean to say that there have been no differences of opinion. It would have been strange, indeed, if in a body of fifty-one men, of fifteen men, or even among the nine members of the subcommittee, there should have developed no variances of viewpoint concerning so complex a subject as the scope of the pharmacopoeia. In fact, if there had been no difference of judgment upon questions of expediency, no differences of experience upon matters of detail, the committee could not have fulfilled the purpose of its appointment. As I see it, the very object of confiding work to a committee is that all views may be presented, heard, considered and discussed; that all varieties of experience may be submitted and reflected upon; for thus, and only thus, can trustworthy conclusions be reached. Such, at least, has been the plan adopted by the chairman of the revision committee for the work of the general committee of revision and of the executive committee. Such, too, has been the plan followed in the subcommittee on scope. Every phase of every question has had full and free discussion. Everyone has had the opportunity to express himself without reserve; everyone has been listened to patiently and attentively; every fact brought forward has been weighed, every argument considered; and this not only in the subcommittee, but especial care has also been taken that views differing from those of the chairman or from those of the majority of the subcommittee, should be properly placed before the executive committee, with which body the decision rests. No one, however, has been so convinced of his own infallibility that he has hesitated to revise his views in the light of new facts or new arguments; and on the other hand, none has been so weak as to yield a well considered conclusion to the mere force of numbers. Not even the chairman, with all my desire for harmony and unanimity, has gone so far as that.

All this applies, as I have said, to matters of expediency and of detail. I am glad to speak of it; but I am still more glad to be able to say that as yet there has not developed, and I see no reason to believe that there will develop, any irreconcilable difference upon a matter of fundamental principle. Hence, I feel the more at liberty to speak freely and frankly to you today, since the subject of my address concerns fundamental principles only. Perhaps I ought to add, before leaving the present topic, that I have not intended, and I am sure that Professor Remington has not intended, to convey the impression that the work of the committees concerning scope has been completed. There are many substances still under consideration, some of them involving large and important questions of policy, and a supplementary report will necessarily have to be made about these. Also, some changes may yet be made even in the lists of admissions and deletions that have been adopted tentatively. Their very publication may invite criticism and suggestion from the great medical and pharmaceutical public, that will lead to a revision of opinion on the part of some members of the committees concerned. Such criticism and comment, it is almost needless to say, will be heartily welcomed.

A sufficient number of articles, however, has been definitely decided upon to permit the various subcommittees to get at work upon the technical questions, and thus to give us at least the hope that the text of the pharmacopoeia may be in shape for publication within a reasonable time after the convention. Now, whatever opinion physicians may form—whatever opinion pharmacists may form—concerning that text when it is laid before them, whatever errors may be found in it, whether of omission or of commission—you can at least be sure that these defects will not be the result of neglect; not the result of carelessness; not the result of inattention. Whatever may be omitted will have been omitted deliberately because, upon the whole, that action seemed best; and whatever may be admitted will have been admitted deliberately because, upon the whole, that action seemed best. The mistakes will be mistakes of collective judgment—no more, no less.

So much, then, for "scope" and the work thus far done upon it.

But, as I have said, scope is but a part of a much larger question, a question in which both physicians and pharmacists are vitally interested—the relation of the pharmacopoeia with the

practice of medicine. That there is such a relation is sufficiently attested by the origin of the pharmacopoeia and by the elaborate machinery provided for its revision from time to time in accordance with the progress of science and the advances in the medical and pharmaceutical arts; as well as by the efforts which physicians of different ways of thinking have made, and are making, to shape that revision. If it were not a matter of basic importance, all this machinery, all this effort, would be a waste of time and energy; most certainly, I for one, should not have devoted to the work the time and the labor that it requires, and that I have cheerfully given.

Now the pharmacopoeia is in itself simply and solely a book of drug standards. However, it may be restricted or broadened in its scope, and to whatever purposes, professional or public, it may be applied—whether it be appealed to in the courts, taught in the schools of pharmacy and of medicine, referred to by physician, manufacturer of pharmaceuticals, retail druggist, customs inspector, lawyer, jurymen or judge—its fundamental character is not altered. It describes drugs, prescribes methods of preparation, and fixes standards and tests of identity, quality, and purity. But to what end? We live in a practical, utilitarian age, and we are justified in asking the question. Why should this elaborate book making machinery have been established and why should the book thereby produced be made an educational textbook and a legal authority—unless out of it there is to come some practical benefit to mankind? What does all our study and discussion accomplish? What need is there for Federal and State legislation on the subject? Why should the prosecuting officers and the courts of the United States and of the several commonwealths be called upon to protect and enforce the standards fixed by the pharmacopoeia? What is the good of Dr. Wiley and all his works? In plain English, why all this bother about drugs and their purity, if drugs are in themselves worthless and needless—if the very idea of their usefulness in treatment is an obsolete or obsolescent superstition? Yet we find not only in periodical literature; not only in publications that are scarcely to be called literature; not only in the addresses of half-baked scientists; but even in medical journals, and occasionally in the addresses of great pathologists and eminent diagnosticians, a tendency, if not to decry, at least to deprecate the use of drugs as part of the remedial practice of physicians.

There is probably no subject connected with the practice of medicine concerning which so many extravagant and absurd



statements are made. Nor is the extravagance and the absurdity all upon one side. Both from those who advocate drug therapy and from those who oppose it, has come much "darkening of counsel by words devoid of knowledge." And there is no more important, immediate duty before the scientific pharmacist than to help in dispelling that darkness. Necessarily, it can be dispelled only by knowledge, and this knowledge must be comprehensive. The light must shine from many sides.

That indiscriminate drug giving is folly, or worse, scarcely needs to be said. When physicians prescribe unnecessarily or prescribe ignorantly, they commit an error, the consequences of which may be disastrous and even fatal. But unnecessary prescription, ignorant prescription, unwise prescription, do not constitute the use of drugs, but their abuse—or perhaps it would be better to say, their misapplication. To condemn all medication because of this would be as irrational as to condemn all surgery because of the occasional mistakes of operators, or to condemn all attempts at scientific feeding because of the frequent mistakes of dietitians. All men are liable to err, and physicians and surgeons are no more exempt from the common failings of humanity than are pharmacists. Nor are those methods of treatment which make use neither of drugs nor of surgical procedures, entirely free from possibilities of error and danger. Not once, but many times, have we seen patients well nigh starved by mistaken restrictions of diet. Harm may result from erroneous advice concerning climate. No denunciation of "materia medica doctors" can exceed in emphasis Weir Mitchell's comments on those who institute "rest cures" when a "work cure" would be better for the patient, or Theodore Schott's characterization of those who administer carbonated baths and gentle resistance exercises to patients with advanced cardiac degeneration. Have we not all had occasion to warn against the misuse of electricity, of x rays, of massage and other mechanical manipulations, of hypnotism and the like? Have we not seen irreparable damage done to the heart and vessels under the direction of so-called experts in exercise—those "knights of the typewriter," whose advertisements vie with the cards of the "get rich quick" swindlers and nostrum mongers in a certain class of newspapers and periodicals? And so through the whole field of remedial measures other than drugs. Shall we therefore condemn the scientific application of air, diet, rest, and exercise? Shall we characterize as credulous ignoramuses or avaricious charlatans, those who

utilize in a right way, the remedial powers of light, heat, electricity, and other radiant forces, or those who apply water in a precise manner in suitable cases?

True, there are persons who do this. There are also those who deny the reality of disease. There are some who consider it impious and irreligious to resort to human devices of any kind in the attempt to heal the sick. There are publications devoted to the doctrine that smallpox is caused by displacement of the atlas vertebrae, and that typhoid fever can be averted by manipulating the spine! But we are not concerned with vagaries of this sort. We shall not even suffer ourselves to be led into the equally absurd error of denying that wholesome mental influence frequently aids recovery, or that a depressing environment, or a morbid subjectivity may prolong or aggravate sickness. We do not hesitate to admit that some symptoms—not many, and not any organized syndrome—may depend upon anatomical misplacements. But just as it is a far cry from such acknowledgments to the systematized idiocy of Eddyism and Quimbyism; to the delusions of the Swiss, French, or American hypnotists; or to the crude, ignorant, and sometimes harmful, manipulations of Still, and his followers; so it is a far cry from the acknowledgment that all methods of treatment may be misapplied, and in that misapplication be hurtful, to the indiscriminate condemnation of all remedial methods, or of any one of them. Extravagance is not to be met by counterextravagance, either in affirmation or in negation.

It is well to realize that in drugless treatment as well as in drug treatment, mistakes are possible; and that he is as wrong who says that the future of medicine lies in the exclusive use of physiological measures, as he would be who should say that the future of medicine lies in the exclusive use of drugs. Neither extreme is right. The future of medicine lies in the intelligent, discriminative use of all the powers of Nature and of art—of mind and of matter! No one rejoices more than I do in the enlarging application of physiological therapeutics, and I might perhaps in passing, be permitted to take to myself some little credit for the introduction of this term, and for the greater use which has been made during the last decade of the methods thus designated. I may, indeed, assume to speak concerning them with some authority. I have a robust faith in their efficacy, when rightly applied, in right cases; and an equally unshakable faith in the efficacy of the right drug, given in the right dose, at the right

time, to the right patient. Physiological measures are right in their place, but their field is necessarily restricted. Drugs are right in their place, but their field is necessarily restricted. Mental influence is right in its place, but its field is necessarily restricted. Agents of biological defense—as I have proposed to term bacterial products, remedial serums, and preparations of animal organs—are also right in their place, but their field is necessarily restricted. It is the function of science to define these fields with ever-increasing accuracy, and the function of the practitioner of medicine to learn how to apply each method within its field, with ever-increasing, and always discriminative skill. There are also portions of each field that are overlapped by one or more of the others—where diverse methods are applicable. This, too, is to be recognized and made clear. The wise physician is he who makes use of all possible means by which he can aid the struggle for health; by which he can influence for good the functions of the human body; by which he can antagonize the material or mental generators of disease. And he is the unwise physician who restricts his view or limits his armamentarium—who, as it were, puts a blinder upon his eyes, or ties one hand behind his back, when he goes forth into the combat against death.

Now if there has been undue error in the prescription of drugs, and if there has been undue neglect of physiological measures, whose is the fault? I am a teacher of medicine and a sometime teacher of materia medica and therapeutics. But I do not hesitate to say that if the picture drawn by some of the critics of drug treatment is true, the fault must lie with me and with my colleagues, the professors of medicine, of therapeutics, and of materia medica in the medical schools of this land. And yet I feel that we have tried to do right, that we have tried to teach our students how to apply remedies and how to discriminate in their use. Perhaps our general failure has not been so great, after all. Perhaps the great body of the medical profession is not so ignorant and so helpless as certain medical orators and journalistic critics profess to believe. Perhaps—let me say it softly—the shoe may be upon the other foot.

Be this as it may, it must be admitted that for a generation at least (and happily, I am referring to the past more than to the present) the average medical student failed to receive the comprehensive, the confident, and the discriminating instruction concerning remedial measures to which he was entitled. But the reason is quite other than that which the critics usually advance.

From Vienna, especially in the latter half of the nineteenth century, spread the paralyzing infection of therapeutical nihilism, even as cholera spreads from the Holy Well at Mecca; and pilgrims returning from the Austrian Mecca carried this infection home with them, to culture it in the medical colleges and the learned societies. But it was not an unmixed infection. The government of Russia has been characterized as "a despotism tempered by assassination"; and the attitude of the therapeutic nihilists might be termed—somewhat similarly—a *pessimism tempered by credulity*, and that credulity, crass and willfully ignorant, was almost worse than the pessimism with which it lived in symbiosis.

Fortunately, there were in every land, teachers whose scientific resistance was highly developed. They were perhaps optimists—with a saving temper of wholesome scepticism. They demanded proof—but they were open to conviction. I will not cite many names; they adorn the medical literature, even of Germany and of Austria-Hungary, and in greater number, that of France and that of Great Britain. But I must make acknowledgment to two distinguished Americans, one of whom happily still living in his honored retirement, my birthplace can claim as its own—Horatio C. Wood, *primus inter pares*; and the other, though not a native of Philadelphia, at least became an adopted son of that city and of Jefferson College—my own great teacher, Roberts Bartholow. And with these mighty men of therapy, might be named leaders of clinical medicine—my master in practice, J. M. DaCosta, my brother and preceptor, J. Solis Cohen, and others—who remained immune from the nihilist infection, and whose teachings have been a potent antitoxine preserving the hopefulness and helpfulness of American medicine. Keeping themselves fully abreast of the advances in physiology and pathology upon which medical science rests, and applying every improvement in diagnostic methods, so that their clinical observations might always be trustworthy, Wood and Bartholow and DaCosta and their compeers, nevertheless taught that physiology, and pathology and diagnosis were but the beginnings of medical art: its consummation lay in therapeutics. And their definition of therapeutics was comprehensive enough to include both prevention and treatment. The antagonism that some would make between the art of preventing disease and the art of assisting recovery, was to these great men an illogical and harmful distinction; for the same fundamental principles underlie both, and the differences between them re-

late neither to means nor to methods, but only to the circumstances under which these are to be applied.

If I have not hitherto, in this address, emphasized prevention it is not because prevention is not an integral part of the practice of medicine, and not because the pharmacopoeia has no relation thereto, but because prevention is only a part of the larger subject of therapeutics; and because, unfortunately, the work of most practitioners of medicine begins after the opportunity for prevention has passed. But let me repeat that the principles of prevention and the principles of treatment are identical, and that what is said concerning one may, *mutatis mutandis*, be applied to the other.

Now the great merit of Wood and Bartholow—not only in their lectures and in their text-books, but also in their practice—is first, that they correlated science and art, the laboratory and the bedside; and second, that they had, and therefore could inspire, confidence in the resources of medical science and art.

It is true that in disease the tissues of the body are greatly altered and its functions profoundly changed. It is true that some of these morbid alterations of tissue and of function cannot helpfully be influenced either by drugs or by physiological measures. It is also true that recovery depends essentially upon the innate powers of the organism itself; and since some of the symptoms of disease are but expressions of the struggle of these innate powers to restore health, any interference therewith might be harmful rather than helpful. It is likewise true that drugs disturb function, and that such disturbance may be toxic, and even fatal. It is equally true, however, that the unaided powers of the organism are rarely sufficient of themselves to establish certain and speedy recovery, and that the physician is called upon, by the exercise of his art, to assist recovery and to minimize the discomforts and dangers attending the natural evolution of disease. Great as may be the alteration of tissue, profound as may be the derangement of function, these are not always beyond control. If, in some cases, death or disablement is inevitable despite all that the physician can do, yet in others he can prolong life, he can promote comfort; and in some cases he is able even to avert death. The great teachers whom I have cited, like their great predecessors in every age and every generation, emphasized the duty of the student of medicine to learn the present resources and possibilities of his art, and to endeavor to improve and enlarge them; thereby diminishing the



number of fatal maladies, of hopeless affections, and increasing the number amenable to remedy. In the endeavor so to enlarge and improve medical art, they said, in effect, we must use every means that creation places at our disposal. Among these means are the agents of the pharmacopoeia. These minerals, these plants, these active principles, have a decided influence upon the human body, upon its tissues and upon its functions, in health and in disease. He that best learns the range and effects of that influence can apply it most intelligently at the bedside. There is a great body of facts concerning the influence of medicaments which can only be developed in the laboratory, under the rigorous and exact conditions of experiment. We cannot all become trained experimenters, but we can at least study the experiments of others, so that we may correlate the exact knowledge thus found with that other and greater body of knowledge that can be obtained only at the bedside. Laboratory investigation alone is useless; clinical observation alone is insufficient. Both are needed, and the wise physician makes use of both. But the same intelligent, discriminating reserve must be exercised in the one case as in the other.

As was said concerning drugs and physiological measures, that we need both hands, so may it be said concerning the application of drugs, that here also we need both hands. We need the knowledge of the laboratory, as we need the knowledge of the bedside; and the clinician who would reject the exact information offered him by the pharmacologist, is as foolish as the pharmacologist who sneers at the observations of the clinician. Both are necessary, and both must be taught. But since the conditions of disease cannot accurately be reproduced in the laboratory, its results are limited and incomplete; and the truly scientific pharmacologist is the first to acknowledge that the final word as to the action and worth of any drug in the actual practice of medicine rests not with him, but with the clinician.

Pharmacological investigation is today dominant in the colleges and in the societies, and needs no defender; it is clinical observation in therapeutics that bears the brunt of current criticism. I may therefore be pardoned if I dilate a little further upon certain aspects of scientific observation in the sickroom. For such observation is as scientific, and within its limits may be as accurate, as observation in the laboratory. Physicians must not forget that scientific medicine traces its descent from Hippocrates, the empiricist, and not from his dogmatic opponents.

Their dogmatism was that of the logician; the dogmatism of today is that of the experimenter. But just as the very perfection of logic must inevitably lead to false conclusions when the premises are faulty, so must the very accuracy of experimental results lead to false conclusions when the attempt is made to transfer them in disregard of the fundamental limitation of experimental knowledge—namely, identity of conditions. And this is where empiricism in medical art transcends both logic and experiment—that it is confessedly elastic; and hence capable of ready modification to meet changed circumstances. The builders of the pyramids, nay, even the architect of Pisa's leaning tower, were unfamiliar with Newton's formula; but who may deny that they had a practical, working knowledge of the laws of terrestrial gravitation?

From a comprehensive view of experience there comes a large knowledge concerning the consonance of means and ends, even when the intermediate processes are so hidden or so complex as to defy attempts at explanation. Until Ehrlich gave us salvarsan, which one of our specifics had any other origin than clinical observation? How did we learn the powers of digitalis, of arsenic, of opium, of mercury? Indeed, who can now explain them, if explanation is pushed—and not to its ultimate, but, let us say, its antepenultimate, limits? Concerning many details in treatment I may differ with my distinguished friend, Sir William Osler; but in this I agree with him—I quote from memory and may not quote *verbatim*—"Only the savage can explain every thing!"

Rigorous and exacting as are the methods of the pharmacological laboratory and of chemical analysis, what more are the results which pharmacologists and chemists give us, than the narrative of facts observed under given conditions? Can any pharmacologist or chemist tell us *why* digitalis affects the pneumogastric nerve, or affects it in a definite manner? They have pushed the problem a few steps further back; but they have not solved it. With full appreciation of the debt that science and art owe to instruments of precision and their skillful employment—to the ingenuity with which the details of experiments have been devised and wrought out—it is still to be said that the methods of the laboratory are too coarse to reveal any but the grosser changes brought about in the animal organism under the influence of drugs. The clinician, familiar with the normal operations of the human body and with their aberrations in dis-

ease, is equally fitted to determine the changes brought about through the influence of drugs administered under clinical conditions.

But there is a pitfall in clinical observation also—there are many pitfalls, but I refer to one especially. Not the *post hoc propter hoc* fallacy—every tyro is taught to avoid that. The one I mean is not usually recognized as a ditch; it is rather considered a bridge or a highway. I mean the statistical method of study as applied to therapeutical measures. It is valuable in some large relations—for example, as to the use of cold water in typhoid fever, or of fresh air in lobar pneumonia, or of quinine in malaria. But it is of limited value as to the control of special symptoms, or the management of special emergencies occurring in the course of treatment of both acute and chronic ailments. A sick man is something more than an integer in a column of figures. Each case, each patient, presents certain individual, perhaps unique, features; and sometimes these are of great—even greatest—importance. What shall be done or left undone is therefore, in the final issue, a question of good judgment in the individual instance, at the given time; and the decision frequently depends upon factors that cannot be set forth statistically. For, after all, the practice of medicine is not, and can never be, an exact science. It is a scientific art—that is to say, an art tempered by science. Now in a science, definite rules can be laid down. In art, a large measure of discretion must be left to the artist; and different artists accomplish equally good results in different ways.

And here I take off my hat to the country doctor, the man who knows from long experience what he can do with simple measures; measures, even, that by some are called obsolete or antiquated. I know that man. I have met him in the laboratory where he works—at the bedside of his patient. I have seen his results; and knowing, as I do, that a single case properly studied is often worth many dozens of statistical reports, no one can tell me that when this hard-working, close observing, experienced physician reports, in a clear and precise way, that he has observed such and such conditions, and has applied such and such measures, and the results have been so and so—no one can make me believe that this man either deceives himself or attempts to deceive his fellows. If the young men who now go out from our colleges have not the same large knowledge of means and the same wisdom concerning their adaptation to definite ends, our

teaching is at fault. Why do these young and experienced physicians so easily succumb to the blandishments of the "detail man," glibly grinding out his barrel organ recital of delusive hopes? Why do they hear so avidly this phonographic siren song? May it not be because their instruction has been insufficient? If their teachers have failed to put in their hands the tried and trusty weapons that are in the arsenal of medicine, is it to be wondered at that they seize whatever plausible substitute may be offered? Who lacks a sword may grasp at a painted lath. Nor are the most modern weapons always the best. David was without sword, and he overthrew Goliath with a pebble. But whether it be the well directed pebble from the sling of the Judean shepherd, the trenchant battle ax of a Richard Lionheart, the singing arrow from Ulysses's mighty bow, or the far-carried rifle bullet of the modern marksman—whatever the weapon, new or old, it is the skill with which it is used that makes it effective—and it is the duty of the leader to teach his soldiers how to use it. Nor is that soldier less efficient than his fellows, who when sword, rifle, or bow is wanting, can use sling and pebble.

Now it is written that when David prepared for combat with the Philistine giant he carefully selected from the bed of the brook four smooth, rounded pebbles. They were standardized pebbles, and one of them did the work.

The pharmacopoeia, we have seen, is a book of standards. Whether it provides for the man who fights death with stones or for him who uses rifle bullets, they must be true stones and true bullets. For him who can use them well, the one is as important as the other. So when it comes to revising the pharmacopoeia, and we find therein remedies that have held their position through revision after revision, because of well attested professional traditions of their usefulness, even though they be less precise or less potent than some others, they still have their place in the arsenal. Let not the new recruits forget that the elders, even those about to receive the long furlough, are still fighting in the ranks and must have the arms with which they are familiar. When, therefore, we find a large and important body of medical men—the country doctors, if you will—asking for the retention of their tried and trustworthy remedies, we are not to reject that plea lightly. For let it be remembered that to dismiss a drug from the pharmacopoeia is to destroy its professional and legal standardization. And when, as I say, I have seen these country doctors fighting alone against great odds, able to achieve vic-

ories—not in my way but in their way—that I wonder at and envy, I am not the man to deprive them of the weapons that they know how to use so well.

This, however, does not excuse therapeutical superstition. We have to weigh all the facts, both of laboratory experiment and of clinical experience. We have to make sure that they *are* facts; that the evidence is true evidence. Not every reporter, though he be a college professor, or a country doctor, is infallible, or even precise. We have to consider the advantages of chemistry and of pharmacy, as well as those of pathology and diagnosis; and that which is clearly useless, that which has been unquestionably superseded—that which will prove not a sword but a lath in the hand of the fighter; the bullet or the pebble that will not carry true—must be dismissed. It will be clear, therefore, that so far as regards the scope of the pharmacopoeia, I can favor neither of the extreme views that have been put forth. "Prove all things and hold fast that which is good" was the advice of a wise teacher, and that is the rule which the pharmaceutical profession and the medical profession must apply to the pharmacopoeia. In so far as drugs are concerned, it represents the physician's armamentarium; and it must provide a sufficiently comprehensive and varied store of arms to meet the needs of all classes of physicians, of all classes of patients, and of all sections of the country. But it must not become an antiquarium museum, or a refuge for rusty swords and broken spears that should go to the junk heap.

One thing further there is of which I should like to speak before concluding. I have already alluded to the agents of biological defense, so valuable both in prevention and in treatment, and represented in the present pharmacopoeia by diphtheria antitoxine. These agents are typical of the great advances in medicine made in our own time, the end of which no man can foresee. That recovery depends upon the *vis medicatrix naturae*, or, as we phrase it today, "the self defense of the organism"—which can, indeed, be evoked, aided, and imitated by medical art, but cannot be created by any human device—is ancient knowledge, recorded by Hippocrates, and probably even then an inheritance from immemorial antiquity. But it is only through modern research, beginning virtually with the work of Jenner upon small-pox, and finding its most brilliant fruition thus far in the discoveries of Pasteur, Metchnikoff, Wright, Behring, Ehrlich, and their colaborers, that we have been able to take into our hands



or to view under the microscope or in the test tube, the material embodiments of the innate defensive powers.

Yet just pride in these modern discoveries must not be permitted to lead us astray. Great indeed has been our progress in the last generation. The science of bacteriology in its medical relations has developed; has gone through the excesses to which all new sciences seem to be destined; and has returned to sanity. Pathology has been transformed; and the old quarrels of the solidists and the humoralists, which waged anew for a time, under other names, between those who studied only cells and those who gave attention to physiological and pathological chemistry, have forever ended with the recognition that truth belongs to neither, but only to both. But is not this recognition, after all, a vindication of the olden teachers? What are the toxins and the other products of bacterial life and activity, what are the purin bodies, and acid intoxicants and the other products of aberrant metabolism, but the "peccant humors" of the ancients? It would be well for even the youngest and most self experienced of us to study more attentively the wisdom of those great observers of old, who, without microscope or culture tube or chemical laboratory, could yet see with the observant eye of the empiricist, that their patients were poisoned—poisoned often by substances generated within the human body itself. Their terms, which we laugh at today as old-fashioned or absurd, were in line with the general medical, philosophical, and scientific jargon of their age. Who shall say that our grandsons will not find our jargon of metabolism, of auto-intoxication, of antibody and opsonin, of amboceptor and autolysate, and the like, equally crude and laughable? Each generation has a language of its own, and the work of each generation must be sympathetically interpreted according to its own language and the general development and trend of the science and philosophy of its day. The great triumphs of preventive medicine, beginning with Jenner and recently so brilliantly successful in averting typhoid fever in the British and American armies—what are these but the ancient methods of Chinese and Arabian inoculators, later sought to be systematized as "isopathy?" Isopathy is a bad name; but its introducers failed, not because of that, but because they were too far ahead of the general knowledge of their time. Medical advance is conditioned largely by the state of collateral sciences, and even of the industrial arts. The methods of the isopathists, like those of their Oriental predecessors, were crude and dangerous, and

were rightly abandoned. It was only when the exact knowledge and exact methods of recent days had isolated the pathogenic organisms and devised accurate and scientific methods of attenuation, that the great idea of arousing the latent resistant forces of the organism by the introduction of the disease inducing substances in minimal quantity and weakened virulence, could safely be applied. Yet not only the Chinese inoculators, but also Mithridates of Pergamos, who flourished two milleniums ago—and who was said to have protected himself against all known poisons by taking them at first in minute doses, gradually increased until he could tolerate almost any quantity—had grasped the fundamental principle. Pasteur, in producing immunity against anthrax in animals, imitated Mithridates when he sought to arouse progressive intensity of resistance by progressive increase in the strength of the virus inoculated. And so it is but the culmination of these olden adventures in biological therapy, that having on the Jennerian or Mithridatic principle, and through the exact methods of the modern laboratory, aroused an active specific immunity in animals, we can now take from the immune animal's blood the chemical agent of natural defense, and therewith confer a transient, passive immunity upon man.

I, for one, shall be very glad when we can admit into the pharmacopoeia all these biological protectives. The pending revision will add tetanus antitoxine, but our very conservative committee having this matter in charge has not seen its way clear, as yet, to recommend others, because of the difficulties that lie in the way of standardization of product and of process. We must recognize, however, that the field of these agents is narrowly limited; and that even in the treatment of acute infections, the bacterins and the antitoxines frequently need to be supplemented by the use of appropriate drugs, and sometimes by surgical procedures.

Other fields of modern advance are found in the isolation of the active principles of plants, and in the production of synthetic chemicals. Here, too, we must recognize the limitations. It is a truism of therapeutical art that morphine does not represent opium, and what chemist or pharmacologist is willing to say that any derivative as yet obtained from ergot or from digitalis can be substituted for a good preparation of the whole drug? And these are not exceptions, but familiar illustrations of the rule.

Time lacks to discuss the reason, even if knowledge permitted. The fact is indubitable, and the pharmacopoeia must recognize facts.

As for synthetics, many of them are most valuable and fulfill a purpose which can be filled by nothing else. Others are inferior to long known galenicals and chemical compounds. Here the pharmacopoeia must follow, not lead. A few only of the newer products, those whose distinctive worth and place have been established, can be admitted, and I am afraid that even some of these will be shut out by the instruction of the convention concerning proprietary rights.

I have no quarrel with that instruction, but I wish some way could be found to solve this question of patent and trademark, that would be at once fair to inventors and just to the medical profession, and above all, to ailing humankind. I have elsewhere expressed myself fully and definitely upon this head, and need not now repeat. When, as in Germany, "materia medica" patents are restricted to processes, leaving products free, pharmacopoeia makers are less hampered in this matter.

The focus to which this necessarily discursive talk has been tending, should now be apparent. I would have the pharmacopoeia take under its protection everything that can be applied with advantage in the medicinal treatment of the sick. As science discovers or invents new substances, animal, mineral or vegetable, natural or synthetic; as these new substances are found to possess real therapeutical power and to be capable of standardization; and as the knowledge concerning them, experimental or clinical, becomes sufficient to permit intelligent teaching and helpful, discriminative use, they should be officially adopted. The pharmacopoeia must be broad enough to include them all.

This audience will not, I think, take from my remarks the false idea that I consider drugs the only, or the most important remedial means at the disposal of the physician; that I exclude from the province of medicine any means, any power, tangible or intangible, physical or mental, by which the physician can help his patient; provided only, that such means, such forces, be used discriminately and honestly. My quarrel with Eddyism and the like is not because they make use of religious exaltation to assist recovery, but because of the great fundamental fallacy underlying the method of its application; because of the danger that such misapplication of a great theapeutical power may ex-

pose a whole community to the ravages of an epidemic, or allow individuals suffering with progressive organic affections to go unhelped, until they become in truth "incurable."

Yet far be it from me to deny that there are many conditions in which the patient's "will to recover" helps recovery; that faith in the beneficence of the Creator, in whatever form of words, whatever creed, the individual chooses to express that faith, gives a strength and courage that not only helps the sufferer to bear his ills with equanimity, but sometimes makes all the difference between recovery and death. And so with the manipulations of bones and organs. I object to their abuse, not to their rational use; I object, not because they are mechanical measures, but because of the false pathology that underlies their misapplication, and because of the neglect on the one hand, and the dangerous excesses on the other hand, to which such false pathology may lead.

Such, indeed, is the real objection of scientific medicine to any of those methods which have been erected into exclusive systems; not to the particular thing that is done, but to the whys and wherefores of its doing; and this from no mere theoretic, but an intensely practical, viewpoint—because such false reasoning leads to the doing of the wrong thing and the leaving undone of the right thing.

And so with drugs. As strongly as I object to any of the practices just mentioned, I object to the prescription of drugs, unless they are intended to effect a necessary and definite purpose, indicated by pathological and pharmacological knowledge, or by well attested empiric observation. This objection applies to a drug that is not needed; to a drug that can not effect the physician's purpose; to the wrong dose—too much or too little, one is as bad as the other—and to a drug that will harm instead of helping. It does not apply to a drug chosen wisely and skillfully administered. After all, the correct application of any and all remedial methods rests upon the judgment and the knowledge—the wide knowledge and the balanced and comprehensive view—the discrimination and the common sense, of the physician who applies them. Let us rejoice that year by year, day by day, our resources are increasing, our knowledge is enlarging. But let us not deceive ourselves with the idea that our knowledge is final; that we can be dogmatic in rejection or acceptance; or that the view of any individual, however learned or however able, can

compass the whole vast domain of medical science and art. To him who so thinks, let us quote the words of Dante Gabriel Rossetti:

Nay, come up hither. From this wavewashed mound  
Unto the furthest flood-brim look with me;  
Then reach out with thy thought till it be drowned.  
Miles and miles distant though the last line be,  
And though thy soul sail leagues and leagues beyond,—  
Still, leagues beyond those leagues, there is more sea.  
—*New York Medical Journal.*

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### **Recent Progress.**

#### **A REVIEW OF SEVENTY-THREE CASES OF DUDLEY'S OPERATION FOR DYSMENORRHEA AND STERILITY.**

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S. M. Brickner, *New York (Surgery, Gynecology and Obstetrics, November, 1911).*—The operation was that described by Dudley, preceded by wide dilatation of the cervix and light curettage. The denudation of the anterior lip was omitted, but the splitting of the posterior lip, excision of two wedge-shaped pieces and suture was performed typically.

The cases were 106 in number, all suffering from dysmenorrhea and sterility or both, with antiflexion. In all cases the husband's semen was first examined. In 73 cases answers were obtained upon inquiry. Of 21 private patients 84 per cent. were relieved of their dysmenorrhea and 42 per cent. of their sterility. Of 52 ward patients 55 per cent. were relieved of dysmenorrhea and 17 per cent. of sterility.

The author recommends the operation for both sterility and dysmenorrhea. He says that it is of greater service in the relief of the second type. The scar offers no hindrance to subsequent labor.

Pathological antiflexion or retroflexion of a hypoplastic uterus with stenosis of the external or internal os, or both, is a frequent cause of sterility and dysmenorrhea. These conditions can be relieved in 50 per cent. of properly selected cases.



## CANCER OF THE FALLOPIAN TUBE.

Notwithstanding the frequency of cancer of the ovary, E. E. Montgomery, Philadelphia (*Journal A. M. A.*, October 28), says the investigations of Orthmann seem to show that carcinoma is rarely transmitted from it to the tube. Careful observation indicates that in cases associated with tubo-ovarian cysts, the cancer in the tube was primary. Primary carcinoma of the Fallopian tube is rare, but the investigations of Orthmann, Boxer and others have shown that it occurs more frequently than supposed. While sarcoma and chorio-epithelioma have been found, carcinoma is much the most frequent. In the early stages the symptoms are not alarming and the condition may be overlooked, even on operation, unless microscopically examined. Pain is rare, and the most frequent symptom is menorrhagia, and a watery discharge is not infrequent. The symptoms are much like those of a number of other pelvic conditions, but the occurrence of menorrhagia and a watery discharge in a woman who has been the victim of pelvic inflammation, when found associated with tubal enlargement, should be considered danger signals and call for early operative interference. The largest percentage of reported cases occur between 45 and 50, but this is not of diagnostic importance. It has been found as early as 27 and also after the 60th year. Neoplastic rather than inflammatory involvement indicates radical removal. When both tubes and ovaries are involved, or the tubes only in the neoplastic change, the uterus and ovaries should also be removed. The diagnosis cannot be made from the microscopic appearances alone. Its malignant character must be determined from microscopic findings. McCoy reports an interesting case occurring in a woman aged 34 years, her first husband having been said to have died of cancer. She presented the anomalous condition of carcinoma of one tube, tuberculosis of the other and myoma of the uterus. She made an apparently good recovery, but her future cannot but be interesting pathologically. The author's summary is as follows: "The study of the cases which have been reported by a number of observers would seem to justify the following conclusions. 1. Menorrhagia and watery discharge occurring in women giving a history of previous tubal inflammation should be regarded as danger signals demanding careful investigation. 2. The association with such symptoms of tubal masses should be considered as requiring their removal, and where both tubes

are involved the removal of the uterus through an abdominal incision. 3. All neoplastic masses of the tube should be subjected to microscopic investigation, for only thus can the diagnosis as to malignancy or non-malignancy be accurately determined."

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### REDUCING SUSCEPTIBILITY TO "COLDS."

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The annoyance of colds that follow atmospheric changes, even of a mild degree, impress the susceptible individual with the need of improving his bodily vigor so that he will be better able to resist them, and he frequently comes to his medical attendant in search of measures that will accomplish this. Many employ the cordial of the extract of cod liver oil compound (Hagee) for this purpose, owing to its well known power to add strength and resistance to the lining membranes of the respiratory organs, thus enabling them the better to combat microbic attacks. In inflammations of these organs Cord. Ext. Ol. Morrhuæ Comp. (Hagee) has power to be of the utmost service, as it has, also, in the prevention.

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### THE TEST OF A TONIC.

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The field and function of a systemic tonic is generally understood and appreciated by both physician and patient. To stimulate, whip or goad the vital processes is not to "tone," but, on the contrary, to ultimately depress. A real tonic is not a mere "pick-me-up," but some agent that adds genuine strength, force and vigor to the organism. The genuine tonic is a builder or reconstructor of both blood and tissue. Any agent which will increase the power of the blood to carry and distribute the life-giving oxygen is a tonic in the best and truest sense of the word. Iron in some form is an ideal tonic, as it builds up the vital red cells of the blood and the hemoglobin which is their essential oxygen-carrying element. Of all forms of iron, none is quite as generally acceptable and readily tolerable and assimilable as Pepto-Mangan (Gude). It creates appetite, tones up the absorbents, builds the blood, and thus is a real tonic and reconstructive of high order. It is especially desirable because of its freedom from irritant properties, and because it never causes a constipated habit.

## Book Reviews

**BLAIR'S POCKET THERAPEUTICS:** A Practitioner's Handbook of Medical Treatment. By Thomas S. Blair, M. D., Neurologist to Harrisburg, Pa., Hospital; Author of "A System of Public Hygiene," "Blair's Practitioner's Handbook of Materia Medica," Member of the Harrisburg Academy of Medicine, American Medical Association, etc.; 373 pages, special Bible paper; bound in limp leather; price, \$2.00. Published by The Medical Council Co., Forty-second and Chestnut streets, Philadelphia, Pa.

This book gives a condensed intelligent discussion of the best methods of treatment, based on scientific principles, with a well-tried, reliable formula occasionally to illustrate the application of the principles. The author gives many modes of treatment far in advance of the present text-books. An ingenious method of indicating relative dosage is to print the name of the drug in CAPITAL LETTERS for large doses, in ordinary type for medium doses, and in *italics* for small doses. An exhaustive "Table of Large, Medium and Small Doses" is given in the book.

The diseases treated are divided into related groups, each group occupying a chapter, according to the following classification (a copious alphabetical index provides for instant reference to any particular disease):

This book will be a useful pocket companion to the physician in his daily work.

**THE TAYLOR POCKET CASE RECORD.** By J. J. Taylor, M. D., 252 pages, tough bond paper; red limp leather; \$1.00. Published by The Medical Council Co., Forty-second and Chestnut streets, Philadelphia, Pa.

The object of this book is to encourage more accurate observation and study of cases by supplying a convenient form for a condensed record of each important case, in pocket size, so that the practitioner can have it always with him, and so arranged that the necessary data can be written down in the briefest possible time—preferably while the examination is actually being made.

Thoroughness of examination is encouraged by means of a Syllabus, detailing all the points that should be considered in each case.

The blank for the first thorough examination, diagnosis and treatment is followed by spaces for sixteen subsequent visits.

The book provides for 120 cases.

PRACTICAL GLEANINGS.

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The frequent abstraction of a small quantity of blood in hypertension in nephritis, has given such gratifying results in a few cases that its more common practice would seem to be logical. In conditions, such as the one mentioned, the reintroduction of venesection into medical practice might prove highly desirable.

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Hemorrhage from an accidental wound in the vulva is usually better controlled by gauze packing than by attempts at ligation.

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Any menstrual irregularity or abnormality in a woman who has hitherto been perfectly regular and normal in her menstrual periods, should always suggest the possibility of ectopic pregnancy.

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When a patient complains of a peculiar, indescribable itching, crawling sensation within his urethra, it's a safe guess that he is the unfortunate subject of a chronic gonorrheal process.

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A pulsating tumor in the side may be an aneurism of the abdominal aorta, although palpation fails to disclose its connection with the aorta.

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Generally speaking, in the use of vaccines, the more severe the infection, and the more pronounced the clinical symptoms, the smaller should be the dose employed.

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If skiagraphs show the shadow of a calculus at the neck of the bladder when the patient is exposed lying flat with the organ empty, and in the same position when the pelvis is elevated and the bladder full, the stone is in the prostate (or prostatic urethra) or in a diverticulum behind the prostate.

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Injection into a fistula in ano of a staining solution or a colored paste, makes it possible for the operator to assure himself that all branches of the tract have been explored.

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The apparently healthy children of syphilitics must be looked upon as luetic.

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Not infrequently subacute inflammations of the Fallopian tubes will be found to be of tuberculous origin.

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A mild degree of shock causes an increase in leucocytes; severe shock paralyzes the leucoblastic function.

## ACKNOWLEDGMENTS.

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- A DIGEST OF THE LAWS AND REGULATIONS OF THE VARIOUS STATES RELATING TO THE REPORTING OF CASES OF SICKNESS; By John W. Trask, Assistant Surgeon-General U. S. Health and Marine Hospital Service. Prepared by direction of the Surgeon-General. Government Printing Office, Washington, 1911. Reprint.
- STUDIES UPON LEPROSY; THE ARTIFICIAL CULTIVATION OF THE BACILLUS OF LEPROSY; ATTEMPTS AT SPECIFIC THERAPY; By Donald H. Currie, Passed Assistant Surgeon and Director Leprosy Investigation Station; Moses T. Clegg, Assistant Director Leprosy Investigation Station, and Harry T. Hollmann, Acting Assistant Surgeon Leprosy Investigation Station. Government Printing Office, Washington, 1912. Reprint.
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- MINOR AND EMERGENCY SURGERY; By Walter T. Dannreuther, M. D., Surgeon to St. Elizabeth's Hospital and to St. Bartholomew's Clinic, New York City. 12mo volume of 226 pages, illustrated. Philadelphia and London: W. B. Saunders Company, 1911. Cloth, \$1.25 net.
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- THE ABNORMAL TEMPERATURE; By Martin Cavana, M. D., Sylvan Beach, N. Y. Reprint.



PRACTICAL ELECTRO-THERAPEUTICS AND X-RAY THERAPY. With chapters on Phototherapy, X-Ray in Eye Surgery, X-Ray in Dentistry, and Medico-legal Aspect of the X-Ray; By J. M. Martin, M. D., Dallas, Texas. St. Louis: C. V. Mosby Company, 1912. 219 Illustrations. Pp. 440.

A COMPEND OF GENITO-URINARY DISEASES AND SYPHILIS; By Charles S. Hirsch, M. D., Philadelphia. Second edition with 74 illustrations. Philadelphia: P. Blakiston's Son & Co., 1912.

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#### NEWS ITEMS.

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Dr. Rupert Blue was inaugurated Surgeon-General of the Public Health and Marine Hospital Service, January 19, succeeding the late Dr. Walter Wyman. He took the oath of office in the presence of Secretary of the Treasury MacVeagh, Assistant Secretary Bailey and all the chiefs of divisions of the Treasury Department.

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At a meeting of the Fayette County Medical Association, recently, a resolution was adopted declaring that inasmuch as it is general report that some of the members of the association are in the habit of paying commissions to individuals who recommend them to persons requiring medical or surgical treatment, the association desires to put itself on record as declaring that "it is equally derogatory to professional character for physicians to solicit and to receive commissions."

A resolution was adopted declaring that any member of the association who shall hereafter violate this principle shall be expelled and that the expulsion shall be given the widest possible publicity. Secretary J. N. McCormack, of the State Board of Health, attended the meeting.

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The Fayette County Medical Society, with practically all of the members present, held a meeting at Lexington, Ky., January 17, and adopted strong resolutions against the passage of the Herrington bill seeking to overturn the State Board of Health, and the bill which has for its object the licensing of jewelers and itinerant opticians to test eyes and supply glasses. The resolutions also uphold the present vital statistics law, which it is sought to repeal. A committee consisting of six of the best-known members of the medical profession here, headed by Dr.

W. O. Bullock, president of the City Health Board, and Dr. C. W. Trapp, president of the Fayette County Medical Society, was appointed to go to Frankfort to co-operate with a committee from the State Medical Society, when the measures come up for passage.

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Dr. W. E. Gary, Vital Statistics Recorder for Louisville, says that the new State vital statistics law, which has been in operation since January 1, 1911, has resulted in 750 more births in Louisville being reported this year than the year before it became effective. Although all the reports are not in as yet, Dr. Gary says that the figures at hand show that the new law is valuable and practical. The figures show that more than 4,200 babies were born in Louisville last year.

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The Kentucky Midland Medical Society, in session in Paris, Ky., elected the following officers for the ensuing year: President, Dr. C. G. Daugherty, of Paris; Vice President, Dr. L. C. Redmon, of Lexington; Secretary and Treasurer, Dr. Charles C. Garr, of Lexington. The society was entertained at an elaborate dinner by the members of the profession in this city.

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The regular meeting of the Falls Cities Homeopathic Medical Society was held at the office of Dr. G. S. Coon, Gaston Building.

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An interesting program was given at the Broadway Social Center January 12. Dr. W. Edward Grant, chief health officer of Louisville, made an address on the subject, "What the Health Department Does for Us." This lecture was illustrated with stereopticon views. There was also some musical selections in the program. Dr. Grant was introduced by Dr. Roy L. Carter, of Louisville.

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Philadelphia was chosen as the seat of the next annual convention by the Phi Chi Medical Fraternity, at the closing session of its twenty-sixth annual meeting here.

The officers elected were: President, Dr. George C. Amer-son, Chicago; Secretary-Treasurer, Dr. Dunning S. Wilson, Loui-

isville; Executive Trustees, Dr. Charles W. Hibbitt, Louisville, and Dr. Charles D. Humes, Indianapolis; National Extension Committee, Dr. L. T. Luckie, Birmingham, Ala., Dr. James A. Price, Atlanta, Ga., and Dr. E. M. Ellison, Washington.

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Dr. Mortimer Frank, of Chicago, is visiting Mr. Alfred Sellingman, at his home in First street, Louisville.

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Dr. James Royden Peabody, of Louisville, has gone to Vienna, where he will take a special course in medicine.

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Dr. John Hardin Ward, of Louisville, has gone to Florida, where he will spend several weeks.

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Dr. W. P. Humphrey, of Louisville, has returned home from Fulton, Ky., where he was called by the death of his father-in-law, Dr. A. B. Whayne.

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Dr. Charles Meredith Garth, of Louisville, will sail from New York for Panama, to be gone one month.

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Dr. Bernard Asman, of Louisville, has returned home, after spending several days in St. Louis and Hot Springs, Ark.

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Dr. M. L. Ravitch, of Louisville, has returned from Chicago, where he was the guest of the Chicago Dermatological Society at the annual clinical meeting and banquet.

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Dr. David Cummins Morton, of Louisville, who has been in Munich for a year, left for Berlin, where he sailed February 3 for New York, reaching Louisville later in the month.

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Dr. Annie Veech, who has been making her home in Philadelphia and New York for the past four years, has returned to Louisville to locate, and is at 830 Fourth Avenue.

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Dr. M. F. Coomes, of Louisville, is spending the winter in Florida.

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Dr. Ben L. Bruner, who recently was elected president of the Commercial Bank & Trust Company, was the guest of honor at a noonday luncheon given by the Booster's Club recently. Dr. Bruner is president of the organization.

Dr. S. H. Heavrin, of Owensboro, was the guest of his sister, Mrs. J. W. Raley, of Louisville.

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Dr. Hubert Blaydes has returned to Lagrange from Chicago, where he has just completed a post-graduate course in surgery at the Poly-Clinic.

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Dr. William L. Rodman, of Philadelphia, Pa., has returned home, after visiting relatives in Kentucky.

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Dr. J. N. McCormack, of Bowling Green, Ky., has been re-elected Secretary of the State Board of Health.

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Dr. W. H. Blanton, of Danville, Ky., is at the Seelbach for several days.

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Dr. R. G. Sherrill, of Raleigh, N. C., has left the Norton Infirmary and is visiting his brother, Dr. J. Garland Sherrill, of Louisville.

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Dr. J. M. Mathews, who has been in Tacoma, Wash., has gone to Los Angeles, Cal., to spend the winter.

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Dr. Charles Vance, of Lexington, Ky., is spending a few days with Dr. Barnett Owen in the Cherokee Apartments.

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Dr. A. G. Browning, of Maysville, Ky., aged eighty, was assaulted and robbed in his office by an unknown man. He is in a critical condition.

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Dr. Clinton W. Kelly, Jr., who visited his parents of Louisville, for several weeks, left for New York to spend some time at the Manhattan Hospital.

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Dr. Charles Morris, of 2214 Frankfort Avenue, is much improved at the St. Joseph's Infirmary, where he was operated upon for acute bladder trouble.

MARRIAGES.

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M. Rozzell, M. D., of Mayfield, Ky., to Mrs. Kate Hester Long, at Hopkinsville, Ky., Feb. 6.

Samuel W. Holloway, M. D., to Miss Martha S. Whittingham, both of Louisville, Feb. 1.

R. Y. Hindman, M. D., to Miss Laura Heariford, both of Columbia, Ky., Jan. 24.

B. F. Underwood, M. D., of Louisville, to Miss Faire B. Oatts, of Wayne County, at Lexington, Ky., Jan. 8.

Charles C. Brown, M. D., of Mayfield, Ky., to Miss Mattie D. Sullivan, Dec. 29.

Charles Kirtley Deck, M. D., to Miss Eugenie Jewell Carson, both of Louisville, Ky., November 23.

I. Tyler Fugat, M. D., of Anawalt, W. Va., to Miss Anna Laura Mitchell, of Louisville, Ky., December 27.

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DEATHS.

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Joseph H. Scott, M. D., of Louisville, at his home, February 5, of nephritis, aged 79.

H. J. Bennett, M. D., of Richmond, Ky., at his home, Jan. 30, after a short illness.

John Mason Kash, M. D., of Winchester, Ky., at the home of his daughter, Mrs. Floyd Day, Jan. 31, of Bright's disease.

S. I. Yeager, M. D., of Newcastle, Ky., at his home, recently, infirmities of age, aged 97.

Arthur Vincent Meigs, M. D., of Philadelphia, at his home, Jan. 1.

Del. H. McMasters, M. D., of Mayfield, Ky., at his home, Jan. 29, after a short illness, aged 42.

John M. Stucky, M. D., of Gosport, Ind., at his home, Jan. 17, aged 87.

Augustin Cooper, M. D., formerly of Louisville, at his home in Del Rio, Texas, as a result of an accident, aged 46.

Thurston Smith, M. D., of Bloomington, Ind., at his home, Jan. 6, aged 45.



### CALENDAR.

JEFFERSON COUNTY MEDICAL SOCIETY; meets in the "Ather-ton," February 5, 12, 19, 26.

DR. EDWARD SPEIDEL ..... President  
DR. HERBERT BRONNER ..... 1st Vice-President  
DR. ELMER L. HENDERSON ..... 2d Vice-President  
DR. C. H. HARRIS ..... Treasurer  
DR. A. C. LARKIN PERCEFULL ..... Secretary

LOUISVILLE CLINICAL SOCIETY; meets at the Galt House, February 6, 20.

DR. J. M. MORRIS ..... President  
DR. G. B. JENKINS ..... Vice-President  
DR. ARGUS D. WILLMOTH ..... Treasurer  
DR. H. J. FARBACH ..... Secretary

LOUISVILLE SOCIETY OF MEDICINE; meets at the Tavern Club, February 1.

DR. EDW. B. RICHBY ..... President  
DR. E. L. HENDERSON ..... Vice-President  
DR. RICHARD T. YOE ..... Treasurer  
DR. W. O. GREEN ..... Secretary

LOUISVILLE SOCIETY OF PHYSICIANS AND SURGEONS; meets at the Tavern Club, February 15.

DR. A. R. BIZOT ..... President  
DR. JOS. L. SHAFER ..... Vice-President  
DR. A. L. PARSON ..... Treasurer  
DR. J. H. SIMPSON ..... Secretary

MEDICO-CHIRURGICAL SOCIETY; meets at the Tavern Club, February 16, 23.

DR. C. SKINNER ..... President  
DR. JOHN J. MOREN ..... Vice-President  
DR. FRANK C. SIMPSON ..... Secretary and Treasurer

WEST END MEDICAL SOCIETY; meets at the Galt House, February 13.

DR. I. A. ARNOLD ..... President  
DR. H. L. READ ..... Vice-President  
DR. JOHN K. FREEMAN ..... Secretary and Treasurer

CLIFTON MEDICAL SOCIETY; meets First Thursday in each month.

DR. J. M. MORRIS ..... President  
DR. E. T. GRASSER ..... Vice-President  
DR. R. E. WILHOYTE ..... Secretary and Treasurer

AMERICAN MEDICAL ASSOCIATION; meets in Atlantic City, 1912.

KENTUCKY STATE MEDICAL ASSOCIATION; meets in Louisville, Ky., October, 1912.

KENTUCKY STATE HOMEOPATHIC SOCIETY; meets in Lexington, Ky., May, 1912.

MULDRAUGH HILL MEDICAL SOCIETY; meets in Elizabethtown, Ky., April 11, 1912.

KENTUCKY MIDLAND MEDICAL SOCIETY; meets April, 1912. (Place later.)

SOUTHWESTERN MEDICAL ASSOCIATION; meets in Paducah, Ky., Second Tuesday in May, 1912.

AMERICAN PROCTOLOGIC SOCIETY; meets in Atlantic City, N. J., 1912. (Date later.)

KENTUCKY STATE ASSOCIATION OF RAILWAY SURGEONS; meets in Lexington, Ky., May 8, 9 and 10, 1912.

KENTUCKY ECLECTIC MEDICAL ASSOCIATION; meets in Louisville, May, 1912.

NATIONAL ECLECTIC MEDICAL ASSOCIATION; meets in Washington, D. C., June 18-21, 1912.

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## ORIGINAL ARTICLES

### ANTIENTERIC VACCINATION

BY REYNOLD WEBB WILCOX, M.D., LL.D.

*Professor of Medicine (Retired) at the New York Post-Graduate Medical School and Hospital; Consulting Physician to St. Mark's and to the Nassau Hospitals.*

From the discovery by Jenner, in 1796, that artificial immunity against smallpox could be produced to the practical immunization of large bodies of men against enteric fever is a period of more than a century. This purely empirical observation, although so uniformly successful in the results of its practice, has been the topic for discussion and the subject of dispute far beyond any other instance of medical progress, doubtless because it was an empirical fact not susceptible of explanation so long as the germ theory of smallpox was incapable of demonstration. With the discovery of the cytorrhcytes variolæ by Guarnieri, in 1892, and its confirmation by Councilman, in 1903, vaccination against smallpox passed from empiricism to scientific procedure. None the less, honor should be paid to Jenner, because the fact was not possible at that time of scientific explanation, but rather more because his discovery is an immortal tribute to his keen clinical observation. Although in former times there might have been some reason, but not excuse, for decrying antivariolous vaccination, to-day neither reason nor excuse exists.

Antienteric vaccination has long been a desideratum, not only in military surgery, but as well in civil life. It is believed that not less than 80,000 deaths from enteric fever alone occurred in the Union army during the late Civil War. In the German army in the Franco-Prussian War, 73,396 soldiers suffered from the disease.

of whom 8,789 died, about 60 per cent. of the total mortality from all causes being due to enteric fever alone. In the Boer War, of about 31,000 ill from this disease, 5,877 in the British Army died. In the Spanish-American War, of 107,973 soldiers, 20,738 contracted enteric fever, of whom 1,580 died. This disease alone resulted in more than 86 per cent. of the mortality from all causes. The importance of prevention is certainly shown from these statistics, which fairly represent the conditions which exist when large bodies of troops are in active service. It is important, for the existence of the disease and unusually large mortality, at least above that in civil practice, represents a still greater reduction in fighting strength than the mere numbers indicate, for others who care for the sick are not present for duty and the impaired morale of the whole army is by no means to be ignored. Enteric fever was distinguished from typhus fever, in 1836, by Louis and Gerhard; in 1880, Eberth and Gaffky discovered its cause, the bacillus typhosus. Six years later, in 1886, the foundation for antienteric vaccination was laid by Frankel and Simmons, who demonstrated that nonlethal doses of the bacilli protected small animals against fatal doses. In 1892, Brieger, Kitasato and Wassermann found that cultures in which the bacilli had been killed were equally efficacious, and that the immunizing substance was an integral part of the bacillus. The work of Pfeiffer in 1894 resulted in determining the nature of the immunizing substance and developing a method of measuring it. In 1896, Pfeiffer and Kolle succeeded in producing actual immunization.

The results when immunization was applied on a large scale were striking, but not so satisfactory as had been expected. For instance, Wright, in 1898, in his observations in the British army in the Boer War with cultures incubated for three weeks and the bacilli killed by exposure to heat of 60° C. (140° F.) for one hour, reported that the incidence of the disease was reduced one-half and the mortality from it rather more (19,069 men). In 1904, Leishman, employing killed cultures that had been kept for three weeks, and which were believed to be inactive after three months, found that in twenty-four regiments of English troops in India, the case incidence of the disease per thousand of the vaccinated was 5.37; of the unvaccinated, 30.4; and the mortality of enteric fever per hundred of the vaccinated was 8.9; of the unvaccinated, 16.9. This was a considerable reduction in incidence, which had been attained during the previous six years, and was doubtless due to improved technique of preparation and administration.

In general, the preparation of the material is as follows: The Eberth-Gaffky bacilli are grown on agar for twenty-four hours

and the growth washed off with normal salt solution. The bacilli are killed by heat at from 55° to 56° C. (131° to 132.8° F.) on a water bath. The solution is standardized by counting the bacilli by Wright's method, diluted with salt solution and one-fourth of one per cent. of tricresol is added. Each cubic centimeter contains 1,000,000,000 bacilli. The solution is delivered in hermetically sealed glass ampuls. The procedure of administration is as follows: The initial dose is 500,000,000, and two successive doses of 1,000,000,000 are given at ten-day intervals. The antibodies develop in from five to ten days later, and are bacteriolysins, opsonins and agglutinins, the last in large amounts. The last two measure the antibodies present, since their quantitative relations are quite constant. The increase in agglutinins is quite evident in four to five days, the fall begins in six weeks and the normal is reached in fifteen months. The injection is given in the deltoid region, the skin being previously washed with the tricresol solution and soap. The needle puncture is closed with the compound solution of tricresol (cresol, 500; linseed oil, 350; potassium hydroxide, 80; water to 1,000). Tincture of iodine may be substituted for the latter purpose, for the compound cresol solution and for use in camps is the ideal method.

The actual results at the present time are authoritatively given in the last report of the Surgeon-General of the United States Army for 1911:

"During the first six months of 1911, 27,720 persons were immunized; of these 93 per cent. received three doses, 6 per cent. two doses, and 1 per cent. one dose. In this series of cases, the largest so far tabulated, general reactions were absent or mild in 99 per cent. of the inoculated.

"The mean strength of the command at San Antonio was approximately 12,000. There were practically no skin infections at the site of inoculation, nor were there any alarming general reactions. and in over 90 per cent. of the cases treated the general reaction was absent or mild.

"Up to the present time, June 30, 1911, a period of approximately four months, only two cases of typhoid have occurred among the troops in Texas, and one of these was in an uninoculated civilian teamster. The other case was quite mild, and in the absence of a blood culture would probably not have been diagnosed; the patient was a Hospital Corps man who had received only two doses of the prophylactic. Both cases terminated favorably, the second having fever for only sixteen days.

"The absence of typhoid was not due to lack of exposure, for the fever prevailed in San Antonio during the entire time, as shown by

the records of the City Health Office, forty-nine cases with nineteen deaths having been reported during the four months ending June 30, 1911. In Galveston, during the same period, there were stationed between 3,000 and 4,000 men. No cases of typhoid occurred among these troops, although 192 cases were reported in the city during the same period. The water, milk, and to a considerable extent the food supplies were identical. The camp site adjoined the city, and the men spent much of their time when off duty in the city, where they ate, drank and slept. In Southern California and Arizona, about 2,000 troops were mobilized and compulsory immunization was instituted at once. One case of typhoid ending in recovery has been reported in the person of a private of infantry, who gave a history of typhoid in 1905. The fever began five days after the third dose.

"The diagnosis of typhoid, while not established beyond doubt, is probably correct, and the case is apparently an instance of unusual susceptibility to typhoid infection, as neither previous typhoid fever nor prophylactic immunization was sufficient to protect him against infection.

"It is worthy of remark that compulsory vaccination against typhoid fever had never been attempted in any military service until used in our army in Texas and along the Mexican border in the spring of 1911. In this region, troops to the number of above 15,000 have been immunized while under canvas and engaged in the multitudinous activities of maneuvers, without interference with their duties and without any bad results."

In order that we may realize the enormous advantages of anti-enteric vaccination, a comparison of the incidence and mortality of enteric fever in two divisions of the United States Army under conditions of season, latitude, duration of observation, opportunity for exposure and numbers which are comparable, the first, of course, unvaccinated and the second vaccinated under the conditions above cited.

The Second Division, Seventh Army Corps, at Jacksonville, Fla., in 1898: Mean strength, 10,759; cases of typhoid fever, 1,729; deaths from typhoid fever, 248.

The Maneuver Division at San Antonio, Tex., in 1911: Mean strength, 12,801; cases of typhoid fever, 1; deaths from typhoid fever, 0.

The results of anti-enteric vaccination are so striking, and the enormous saving to the army of its fighting strength by its use are so great, that the work of the Medical Corps of the United States Army in 1911 may be truly said to mark a new epoch in preventive military medicine.



## ECONOMIC DIETETICS

BY A. L. BENEDICT, A.M., M.D., Buffalo

*Consultant in Digestive Diseases, City and Columbus Hospitals;  
Attendant in same, Mercy Hospital; Author of Golden  
Rules of Dietetics.*

So much attention has recently been given to the increasing cost of living that it has seemed worth while to attempt the reduction of food analyses to financial terms. The sociologic importance of true economy in the use of nutriments, is shown by the fact that the average poor family, with an income of about \$9 per week, spends slightly more than half on food alone, and that, even for an income of \$50 a week, beyond which probably not more than 10 per cent. of all families go in this, supposedly the most prosperous country of the world, nearly 30 per cent. is spent for unprepared food. Housing costs approximately one-third as much as food. Clothing varies greatly, but, on the average, costs considerably less than food, until moderate extravagance is justified by ample income. No other necessity of life is of more than minor importance relatively.

While a general rise of prices must be regarded as inevitable as wages are increased and hours of labor reduced, it is obvious that if the same determination were shown by the ultimate consumer to resist extortion in food prices, which he manifests in regard to nearly every other item of his budget, and if he had the same intelligent appreciation of the final, actual value of foods as he has of means of heating, lighting, fabrics, housing, etc., he might live much more economically.

It hardly needs argument to show that intelligent choice of foods, even from the financial standpoint, must be based on their actual composition in organic nutriment, inorganic nutriments such as water and salines, iron, etc., being either very cheap or supplied inevitably in any reasonable dietetic range. The problem is, at best, exceedingly complicated. To simplify it as much as possible, the present study is based solely on the caloric efficiency of foods, without reference to choice between fats and carbohydrates (except as qualified below) as fuel foods, and without regard to proteids as tissue builders. Neither has attention been paid to relative digestibility, it being taken for granted that the average healthy person will digest most of the organic ingredients ingested, provided an excess of any one viand is avoided and a reasonable variety afforded.

The caloric value of foods has been calculated from the United States Government tables (as epitomized in the writer's Dietetics) of

the average composition in proteid, carbohydrate and fat, by the following formula: Calories per gram equal proteid percentage, plus carbohydrate percentage, plus twice fat percentage, the whole multiplied by four. This is equivalent to reckoning proteid and carbohydrate calories at 4 per gram, fat calories at 8 per gram. The figures are slightly low for the first two, decidedly low for fats, theoretically, but are quite accurate if allowance is made for the relative physiologic waste in utilizing the different organic constituents.

It is assumed that the average person requires 2,500 calories a day. This is abundant for an adult engaged in professional or business vocations, and may be considered a fair average for the whole community, since workmen's families usually include a disproportionate number of children.

It is obvious that, if we divide 2,500 by the number of calories per gram derivable from any given food stuff, we get the number of grams of that food stuff theoretically required for a day's ration. Both calories per gram and total number of grams representing the ration, are, in terms of the net food stuff, stripped of gross waste, such as bone, gristle, skin, core, pit, pod, husk, cob, shuck, etc.; in other words, the food stuff as actually ingested. No account is taken of water, cellulose, and other innutritious material actually incorporated in the edible portion of the food stuff. Commercial prices are usually reduced to price per pound, occasionally quart or pint, frequently to units, as eggs, bananas, etc. The pound avoirdupois weighs 453.6 grams; the quart corresponds to about 946 c.c. The computations between price per pound or quart and grams or c.c. have been facilitated by the use of logarithms.

It may be said that natural food stuffs vary considerably in gross waste and in percentage composition; that retail prices fluctuate widely, and that the heaping of a measure varies so greatly, that only approximate estimates are possible in translating quarts into pounds, etc. Hence, it is obvious that the ultimate results are only approximate, still they are sufficiently exact to indicate very great differences in the relative economy of different food stuffs. It must be confessed that when circumstances admitted of only approximate results, no attempt has been made to regard fractions.

The statements regarding the proportion of a day's ration, either for a day or two or for considerable periods, which might actually be allowed, are based on an endeavor to avoid the ingestion of more than 100 grams of proteid or fat, or of more than 200 grams of sugar. Some allowance has also been made for the difference between animal and vegetable proteid—or rather, for the accom-

paniment of animal proteid with extractives,—for actual bulk of food and for differences in digestibility, and accompanying toxic saprophytosis in the intestine. It is not intended that the amount stated in the column of proportion allowable for considerable periods must or should actually be used.

As a general basis of computation, it may be stated that the caloric yield varies from about 1/10 calory per gram of innutritious vegetables up to about 8 calories per c.c. actually utilized from moderate quantities of pure oils. On the average, it is about 2.5 calories per gram, so that to yield 2,500 calories, about 1,000 grams of waste-free solid food must be eaten, and this corresponds fairly well to actual domestic figures of consumption. It may also be stated that the maximum of concentration of food implies the use of about 500 grams a day.

The attempt has been made to give a fair, actual range of retail prices, barring those for fancy grades of foods and such occasional fluctuation as is at present writing illustrated by potatoes, and which would, for any other necessity of life than food, withhold the economic person from purchasing unless in an emergency. But it is obviously impossible to represent correctly the food ranges of various localities, or to do more than present suggestive figures from which extemporaneous calculations may readily be made.

The most economic food, and the one best adapted to steady use on a large proportionate scale—approximately 50 per cent. of the whole ration—is some form of cereal, which may be had at a relative cost of 3 cents per total day's ration, if the labor of grinding and milling is not counted. Such extreme economy is, of course, possible only for certain institutions. Yet the average family can be half nourished at a cost of 2.5 cents a day per capita.

When we consider the relative importance of food and the relative importance of cereals among different foods, it is worth while to consider that the custom of buying bread represents a relative increase of cost of 300 per cent.; that the partial supplanting of home-made bread by breakfast foods means a corresponding increase of 800 per cent., and that the cracker trust has not only driven from the market fresh crackers of an appetizing variety, but has doubled the minimum price, which was already double the price of home-made bread. For Graham or almost any kind of cracker, except the plain soda "biscuit," the relative cost of the ration is just about equal to that on the basis of breakfast foods. Attention is also called to a very practical physiologic point. Corn is an excellent cereal, fully equal to rice, oats, and, in fact, every other cereal except wheat. Excepting what has been called wild rice—entirely different from

the rice of commerce — the American aborigines had no other cereal. Yet when corn is popped, it becomes so bulky that its serious consideration as a nutriment is impossible — sixteen popperfuls to the day's ration. Many of the breakfast foods, advertised, and with literal correctness, as nutritious, easily digested, free from the deleterious effects of meat, etc., etc., are almost, if not quite, as inflated in nominal value.

Aside from the true cereals, we have the legumanous seeds, growing in pods, which cost in the dry state not quite twice as much as the former, but which contain more proteid. The only other cheap foods are certain forms of fat, sugar and starch, and usually potatoes.

Glancing over the table, it will be seen that the economic buyer can obtain an adequate range of variety, both in the nutritive and the appetizing sense, at rates varying from 5 to 50 cents per ration. This may be divided approximately as follows:

Cereals at 5 cents, half of ration.....	2.5 cents
Legumes, sugar, fat, fresh vegetables, at 8 to 12 cents, average 10 cents, quarter of ration.....	2.5
Meat, eggs, fruit, etc., at 20 to 50 cents, average 40 cents, quarter of ration .....	10
	<hr/>
	15

This, of course, does not allow for stimulants such as tea and coffee, free choice of small fruits, liberal use of butter, and it premises the maximum of home preparation. Still, it represents no greater care, economy and self-denial than is habitually practiced by small wage earners in regard to housing, clothing, heat, light, etc., and is perfectly feasible, even for the retail buyer.

The attention of the reader is called to the fact that many domestic rules of thumb as to what are cheap and what expensive foods, are entirely erroneous. Butter at 40 cents a pound is well below the average of many households considered economic, although it is usually considered a very expensive necessity and commonly said to amount to one-tenth of the entire food expenditure. An ounce a day, which is about half the average consumption in fairly well-to-do families, supplies one-tenth of the calories needed, so that this complaint of frugal housewives is scarcely justified. Many vegetables, considered both cheap and nutritious, are almost valueless as true foods, are dear at any price, and are gross extravagances at retail rates often charged. Both from the standpoint of indulgence and actual economy, one might better have ice cream, maple mousse, candy, and other delicacies, than onions, radishes, tomatoes, etc.

In a medical article, we must not overlook the question of

physiologic economy. Oysters are regarded by many physicians as highly nutritious for invalids, in need of upbuilding. They are relatively rich in proteid, or rather they are poor in proteid, but contain practically nothing else. Something over thirteen pounds a day are necessary for the ration, and it is obviously one-sided. Clams to the amount of about nine and one-half pounds a day are closely comparable. As is well known, they are tough and indigestible, so the invalid is fed on clam bouillon. No attempt will be made to calculate how many painfals he would have to drink to balance his catabolic processes.

The number of eggs actually representing a day's ration, the contraindication to this number by the fat content; the large volume of milk similarly necessary in theory and the overtaking of the glycogenic function by this amount; the one-sidedness and bulk of proteid extracts, as expressed meat juice; the failure to appreciate the toxic by-products of fat catabolism and the unreasonable prejudice against ordinary forms of sugar, are illustrations, not only of popular, but professional misconceptions of physiologic economics of diet.

Viard	Calories per gram	Amount to yield 2500 cal. grams	Proportion of ration practi- cable for 1 or 2 days	Routine	Price per unit of sale	Relative cost of total ratio if composed of single viand
Very lean meat	1.12	2232	20%	5-10%	10 c. lb.	\$0.49
No gross waste					15	.74
					20	.94
					25	1.19
					30	1.47
					35	1.72
					40	1.96
Fairly fat meat	2.52	992	40%	10-20%	10	.25
Gross waste 7-17% average 14%					20	.50
Very fat meat, mutton, ham, &c.	3.78	661	35%	10-20%	40	1.00
Gross waste 2-28% average 12%					10	.16
Bacon salt pork, &c. with lean strip	5.60	446	30%	10-20%	20	.33
About 10% gross waste					40	.66
					10	.10
					15	.15
					20	.20
					25	.25



Viand	Calories per gram	Amount to yield 2500 cal. grams	Proportion of ration practi- cable for 1 or 2 days	Routine	Price per unit of sale	Relative cost of total ratio if composed of single viand
Clear fat meat	6.96	359	30%	10-15%	10	.08
as salt					15	.12
pork, suet, &c.					20	.16
Medium sized fish	0.85	2941	15%	5-10%	10	1.30
					15	1.95
					20	2.60
Gross waste 50%						

(Large fish have about 30 per cent. waste; very large fish, whose meat is sold in steaks, have practically no gross waste, and as large fish usually contain more fat than small ones, the figures are almost exactly the same as for meats.)

Young chickens, about the same as lean meat, but allow about 40 per cent. gross waste in estimating cost. Older chickens, geese, turkeys, etc., vary considerably, but average about the same as fairly fat meats, including allowance for gross waste.

Oysters	0.41	6098	10%	1-2%	30 c. per qt. (2 lbs.)	\$2.01
					50	3.35
					60	4.02
Clams	0.58	4311	10%	1-2%	60 c. per qt. (2 lbs.)	2.85
Eggs	85. per egg	29 eggs	40%	10-20%	15 c. per doz.	.36
					30	.72
					40	.96
Milk	0.65	3845 c.c.	60%	1-10%	5 c. per qt.	.20
					6	.24
					7	.28
					8	.32
					10	.40
Butter same as clear fat.					25 c. per lb.	.20
					40	.32
Olive and other salad oils	9.	277 c.c.	30%	1-10%	80 c. per qt.	.23
					1.00	.28
Peanut butter	5.6	446.	45%	5-10%	12.5 c. per lb.	.12
					15	.15
Cheese (plain)	4.3	620.	45%	5-10%	10 c. per lb.	.14
					15	.21
					20	.28
Cereals	3.25 to 3.91 av.					
	3.5	714	100%	30-50%	2 c. per lb.	.03
					3	.045
					4	.06
					5	.08
					10	.16
					16 (shredded wheat)	.25
					25 (most breakfast foods @ 10 c. pckg.)	.40

(Barley, buckwheat, corn, oats, rye, wheat as meals, or flowers, vermicelli, nudels, breakfast foods correspond very closely in composition and calories. The variations for any one may exceed the differences between individual cereals. The averages for most individual cereals are 3.45-3.55 calories per gram. Note the enormous increase in cost of the breakfast foods. Many of these are very light and bulky, comparable to popcorn, the day's ration of which is about sixteen popperfuls.)

Crackers	4.04	618	8 c. per lb.	\$0.11
			10	.14
(Difference from plain cereals due to addition			12	.16
addition of fat.)			15	.21
			16 (Uneda at 5c. per	
			pkg.)	.22
White				
bread	2.5	1,000	4 c. per lb.	.09
(Difference from flour due to addition of			5	.11
water and destruction of starch by yeast.)			7 (usual 5c. loaf)	.16
			10	.22
Sugar or	4.	625	30%	5-20%
corn				5
starch				6
				10
				.07
				.08
				.14

Asparagus, cabbage sprouts, cauliflower, celery, cucumbers, beet greens, lettuce, rhubarb, sauerkraut, spinach and tomatoes are nearly destitute of organic food value, what little nutriment there is being densely encased in cellulose. The attempt to give any appreciable amount of nutriment would result in diarrhea, and would actually deplete the body. However cheap, the relative cost per ration would be practically infinite. Small quantities may be used as appetizers and antiscrobutics.

Cabbage	0.25	10,000 gms.	5%	1%		
Egg plant						
Kohl rabi						
Okra						
Leeks						
Pumpkins						
Radishes						
Carrots	0.37	6,757	5%	1%	50 c. per bu. of cheap	
Collards					vegetables	.15
Beets						
Squash					60 c. per lb.	8.94
Onions						
Rutabaga						
Turnips						
Mushr'ms						

(Relative cost per ration varies greatly. At 50 cents per bushel of 50 lbs., 22 cents per day.)

St'g beans	0.33	7,441	5%	1%	10 c. qt. of about 2 lbs.	.80
					10 c. lb.	1.60
					15 c. lb.	2.40
Small						
fruits	0.50	5,000	10%	2-5%	10 c. per qt. (abt. lb.)	\$1.10
berries					15	1.65
cherries					20	2.20
Apples	0.65	3,846	20%	2-5%	1.00 per bu. of 50 lbs.	
					25% waste	.23
Oranges		25 very large ones			25 c. per doz.	1.00
		50 fairly large			40 c. per doz.	.85
(Note paradox.)						
Grapes			30%			
Prunes, Plums			5%	2-5%		
Huckleberries		3,333				
Potatoes	.776	3,221	30%	5-15%	50 c. per bu., 60 lbs., 20%	
					peelings	.07
Sweet						
potatoes	1.15	2,174	30%	5-15%	1.00 per bu., 50 lbs., 30%	
					peelings	.13
Fresh peas and beans, same as sweet potatoes.					2.00 per bu., 50%	.37
					3.00 pods	.56
Bananas	0.94	2,660	30%	3-10%	1 c. apiece	.30
Sweet		or				
corn		about 30 bananas or ears			2 c. apiece	.60
Dry peas,	3.25	769			10 c. per qt.	.08
beans,			75%	10-20%	(about 2 lbs.)	
lentils					15 c. per lb., Lima	.25
Nuts	5.5	455	25%	5-10%	40 c. per lb. of meats	.40

Except chestnuts, most nuts range from 5 to over 6 calories per gram, and are quite fatty. If bought by the measure, uncracked, 30-85 per cent. must be allowed for shucks.

## JOSEPH LISTER

By JOHN B. HUBER, A.M., M.D.

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"My Lord," said Ambassador Bayard years ago, "it is not a profession, not a nation, it is humanity itself which, with uncovered head, salutes you." And more than a decade ago the American surgeon Keen wrote: "When the profession arose *en masse* at the International Congress of Berlin, and at the meeting of the British Medical Association in Montreal, and welcomed him with cheer after cheer, it was but a feeble expression of gratitude for benefits

which no word can express." For a just and adequate appreciation of such sentiments one should compare Pre-Listerian surgery with that which obtains in the present day.

Before the coming of anesthesia, the elder sister of antisepsis, the field of effective surgery was limited indeed. Operators were men of well-nigh perfect knowledge in anatomy, of marvelous skill and deftness, of combined courage and humanity such as no other calling could manifest. They oftentimes thrilled the amphitheatre in which they worked to tremendous excitement, even to cheers. Patients collapsed and died "on the table" of terror at the first incision. Operations had to be rapid because the patient had to suffer without relief the psychic shock and the physical agony of the knife, the saw, the ligature and the necessary manipulations. For instance, Horace Walpole wrote in 1756: "Poor Lord Digby is likely to escape happily at last, after being cut for the stone, and bearing the preparations and execution with such heroism that waking with the noise of the surgeons he asked if that was to be the day? 'Yes.' 'How soon will they be ready?' 'Not for some time.' 'Then let me sleep till they are.' He was cut by a new instrument of Hawkins, which reduces an age of torture to but one minute."

Such circumstances naturally lacked the exquisite finesse and technique of modern surgery; for the patient's lethal state now precludes the necessity of haste, whilst the muscular and other tissues are so relaxed that superb work is possible. But all such shock and torture were obviated for the patient, when the dentist Morton gave ether successfully in the Massachusetts General Hospital on October 16, 1846, the date now appropriately observed in Boston as "Ether Day"; and with the almost simultaneous discovery of chloroform by the Scotchman Simpson.

But even the blessed advent of anesthesia by no means rid surgery of all its terrors; there was sadly needed the aid of her younger sister antisepsis. The tortures of the immediate operation were abolished; but horrors aplenty remained. There was dreadful after suffering, and all too frequent death. Nowhere else in civilization was there so melancholy a status as "hospitalism." Surgeons, internes and nurses had to dress wounds with heart-rending ineffectiveness—wounds gangrenous and saturated with erysipelas, tetanus, pyemia, septicemia. Septic poisoning and "hospital gangrene" reaped a post-operative harvest, difficult of conception for us who are accustomed to the blessed rarity of such phenomena in hospitals to-day. And those cases when "primary union" was obtained, without pus or fever or undue pain, were held to verge upon the miraculous. Such was surgery before 1870, about the time of Lister's

initial demonstrations of his methods of antiseptis—methods which entitle him to be considered the greatest surgeon in all human history; for by their use have not only more lives been saved than any conqueror ever contrived to destroy, but also by means of them have incalculable pain and misfortune been removed from human experience.

Every great discovery may be likened to the apex of a pyramid; it is the culmination, in the genius of an innovator, of the thought and contributions of many preceding labors in the devoted and ardent service of mankind. In science at least, no man, however obscure, works in vain. Full many such an one has given his whole life to establishing a fact, or indeed only an item to a fact, that almost inevitably becomes fruitful and sometimes very vitally so.

As early as 1840, Semmelweiss in Vienna held puerperal fever to be an infectious disease, though he could not bring proof in the present-day sense. In the hospitals of that city women in childbed were dying in enormous numbers because of the infected atmosphere of those institutions, and the unclean hands of attendants who had perhaps just previously come from the bedsides of diphtheria or scarlet fever sufferers. Semmelweiss practiced the strictest cleanliness and the use of calcium chloride, and reduced the death rate among his own cases from twelve to a trifle over one per cent. Our own Oliver Wendell Holmes, three years later, proved childbed fever to be a contagion. And in 1844 Litzmann characterized it as "a febrile miasmo-contagious disease peculiar to puerperal women." Yet despite Semmelweiss and Holmes even recent years have seen their all too many cases of this dreadful disease; between 1816 and 1875 Europe had 170,000 cholera deaths, 165,000 smallpox deaths and 363,000 deaths from puerperal fever. No wonder the Book of Common Prayer laid special stress upon the perils of childbed.

It is notable in these premises that Tyndall observed (as any one else might have) how solar light, in passing through a dark room, reveals its track by illuminating the dust floating in the air. But with the intuition of genius (which every one doesn't have) he fitted into this observation the statement he had recalled of Culverwell that "the sun discovers atomes, though they be insensible by candlelight, and makes them dance naked in his beams." Possibly also he had read of Robert Boyle who in the seventh century predicted "he that thoroughly understands the nature of ferments and fermentations shall probably be much better able than he that ignores them to give a fair account of divers phenomena of several diseases (as well fevers as others), which will perhaps never be properly understood without an insight into the doctrine of fermenta-



tions." Tyndall, in his researches on the decomposition of vapors by light, had to remove these "atomes" and this dust. It was essential for his experiment that the space containing the vapors should contain no visible thing—that no substance capable of scattering the light in the slightest possible degree should be found in the tube traversed by the luminous beam. Various efforts to eliminate this floating matter were ineffective; such matter by the way was *not* visible in the exhausted, vacuous experiment tubes. However, on one occasion, before sending the air through the apparatus, he permitted the former to pass over the flame of a spirit lamp, where upon the floating matter no longer appeared in the experiment tube. It had been burned up by the flame, and was therefore organic. Tyndall did not even then know the precise nature of this organic material, but his scientific acumen led him to find some relation with this phenomenon in the researches of Davaine and Pasteur. The former had in 1863 discovered little rod-like bodies (bacilli) in the blood of sufferers from wool-sorters' disease (anthrax). And two years later Pasteur demonstrated the bacterial origin of Pebrine, the silk worm disease—a finding violently opposed by those who believed in spontaneous evolution.

Tyndall then, for his part, had conjectured that these "atomes" or bacteria or "particulates" were entities not at all identical with units of unvitalized matter. With Pasteur he believed that they were organic and had life, being in the main vegetable parasites; that they were self-multiplying (which phenomenon explains infection); that, however minute they were they must partake of the properties of vital things, and must be differentiated into species, each propagating its own kind and none other. We shall not get figs from thistles nor thorns from grapes. "If you sow wheat you do not get barley; if you sow smallpox you do not get scarlet fever; the matter of each infectious disease reproduces itself as rigidly as if it were dog or cat." Florence Nightingale, from her Crimean experience, had a like presentiment.

Such findings as these did Lister permeate with his genius and appropriate to his beneficent ends; it was upon them that he based the principles of antisepsis. To Pasteur Lister ever accredited the inspiration for his own work; he but applied to the practice of surgery, so he averred, the demonstration that putrefaction is due, not to the air, but to bacterial development in the putrescible substance, and he deduced that when such microorganisms gain access to human blood and lymph, infection is the logical result. "I flatter myself," he wrote the great French chemist, that you may have read with some interest what I have written on the organisms which you were the first to

describe in your works. I do not know whether the records of British surgery ever meet your eye. If so, you will have seen, from time to time, notices of the antiseptic system of treatment, which I have been laboring at for the last nine years to bring to perfection. Allow me to take this opportunity to tender you my most cordial thanks for having by your brilliant researches, demonstrated to me the truth of the germ theory of putrefaction and thus furnished me with the principle upon which alone the antiseptic system can be carried out."

Joseph Lister, born in 1827 at Upton in Essex, a region now included with the city of London, was the son of an eminent oculist, who had made an invention in microscopy; by which it would seem, the trend of Joseph's mind and of his later activities was somewhat determined. The son was graduated in medicine in 1852. From 1860 to 1869 he held a chair of Surgery in Glasgow, during which time he made many researches which proved the foundation of his later work. He then went to Edinburgh, where he became associated with the illustrious Surgeon Syme, whose daughter he married; and from 1869 to 1877 he held the chair of Clinical Surgeon in the Edinburgh University; in the latter year he took a like post at King's College in London; and he retired from practice in 1896.

Even in Glasgow Lister experimented to the end that germinal infection might be kept from wounds. Carbolic acid was a discovery of that era; and Lister, observing that it deodorized and disinfected sewage, used it as a germicide. His first experimentation was with compound fractures. Believing that the impregnated air carries the infection to the wound, he conceived the problem first of guarding the wound and subsequently of protecting it against the air. He, therefore, first cleansed the affected region with carbolic acid, and then made a dressing to cover it, of lint soaked in the acid. His success with this agency led to its employment in flesh wounds generally and in abscesses. But finding pure phenol unduly irritant, and indeed poisonous when absorbed from wounds extensive in area, he made various dilutions, especially "Lister's Antiseptic Putty," which was compounded of linseed oil, carbonate of lime and carbolic acid. Here began surgery in the modern sense.

Thus, even before the discovery of the bacteria of suppuration (1881), of erysipelas (1883) and tetanus (1887) did Lister prove that by surgical cleanliness all infection could be avoided. The mortality of compound fractures in the preantiseptic days was sixty per cent.; these were the most dreadful and the most dreaded of all accidents; their mortality now rarely exceeds 3 per cent., and

sepsis after such a fracture is now practically nil. Before Lister the mortality from major operations for the relief of great surgical injuries varied from 50 to 63 per cent.; such mortality now seldom exceeds ten per cent., and operations are now done that only a mad-man would have attempted forty years ago.

Believing at first that infection is air-borne, Lister prepared an antiseptic spray of carbolic acid to be played upon the wound during operation; but he soon found, with others who had joined him in his investigations, that the air is not the only, nor indeed the chief source of infection. No surgically unclean substance—clothing, sponges, the patient's skin, the attendant's hands—could be considered bacteria free; so the use of the spray was abandoned, and the most scrupulous "surgical cleanliness" was instituted with regard to any substance that might possibly come in contact with a wound. Thus in the course of time was *a*-sepsis developed out of antiseptis. The surgeon is not now satisfied to be rid of the dirt which can be seen; he must have banished also the microscopic dirt, the bacteria, which cannot be seen. Instead of filthy cloths, sterilized cottons and lints are now used in and upon wounds; the old dirty, rusty instruments have been replaced by those of aseptic type. Asepsis is now a matter of course in the modern hospital, which is an institution immaculate in every conceivable detail; here again Lister was an innovator, for in the very beginning of his work he sought to make hospital wards clean—which they had not been. And both by instinct and intuition he himself abluted frequently and required as frequently washing of the hands, at least, of internes, nurses and all other attendants upon the sick.

After eight years of teaching (which was oftentimes received with an indulgent smile); after as many years of operations amazingly successful based upon the antiseptic principle, Lister's views were accepted and followed in Scotland "after a fashion." He was much more appreciated in Germany and in America than in England, and least of all in the institutions of Glasgow and Edinburgh, where he had done his monumental work, and where its success was most obvious.

The infectionless operation, coupled with anesthesia, has increased the range of surgery beyond the wildest dreams of those who labored in this field but thirty years ago; here is a benignant revolution which only those who have lived both in the old surgery and the new can appreciate. Our amputations and compound fractures are now practically without danger. Sir Ashley Cooper, perhaps the greatest surgeon of a century ago, was most reluctant to remove so picayune a thing as a vein from the august pate of the

Fourth George, for fear a fatal erysipelas might intervene. To-day tumors in all part of the economy (even those involved in a nightmareish cervical labyrinth of vital nerves and vessels) are removed. Bone deformities following fracture are refractured, the deformed portions are removed, or joined end to end and all with little fever and no suppuration. Every tissue, every organ, every cavity is fearlessly entered; the heart itself is operated upon; the brain substance is laid bare. How fascinating were a volume detailing the merciful achievements of modern surgery; how eloquent a tribute to Lister were such a work.

Truly there were giants during that latter half of the nineteenth century; but none among them wrought more beneficently than did Lister. Personally his presence was most gracious and dignified, and kindly withal, of a kindliness most benignant in its effect upon any sufferer. Tall and slender of build, his carriage was nevertheless graceful. His head was superb, his forehead intellectual, his eyes expressive of wholesome emotion — an unusual gift in such an intensely practical nature; his lips mobile but compressed; the whole personality potent with latent energy.

This epoch maker became a baronet in 1883, and was made a peer in 1897—the first medical man to have been thus distinguished. These being unquestionably great honors, as were many others that were added to them throughout his eighty-five years—the presidency from 1885 to 1890 of the Royal Academy, the LL.D. from five universities, and much else besides. But far greater than any other title, and that which posterity will cherish when others are forgotten, will be Joseph Lister—the Father of Antiseptic Surgery. And in his lifetime probably no eulogy touched him more than did this sonnet on "The Chief," written by Henley, who was a patient in one of the institutions which Lister attended:

His brow spreads large and placid, and his eye  
Is deep and bright, with steady looks that still.  
Soft lines of tranquil thought his face fulfil—  
His face at once benign and proud and shy,  
If envy scout, if ignorance deny,  
His faultless patience, his unyielding will.  
Beautiful gentleness and splendid skill,  
Innumerable gratitudes reply.  
His wise, rare smile is sweet with certainties,  
And seems in all his patients to compel  
Such love and faith as failure cannot quell.  
We hold him for another Herakles,  
Battling with custom, prejudice, disease,  
As once the son of Zeus with Death and Hell.

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## EDITORIALS

### SALUTATION

With this, the first number of THE AMERICAN PRACTITIONER, incorporating the *American Practitioner and News*, published in Louisville, Ky., for forty-six years, and the *New England Medical Monthly*, which includes the *Annals of Medical Practice*, published in Boston, since 1888, the Editor proffers hearty greetings.

The purchasing of two old established and representative organs, merging them into one and establishing a new home remote from the birthplace and family ties of their lives, may seem to their friends as a lack of sound judgment, for forty-five years of an honorable existence is assurance of warm ties and genuine sympathy. This is especially true of a journal which has in its life been an active part in the history of a medical center and school which nursed a senior Flint, a Gross, Yandall, Bodine, Cottell, a Matthews and other brilliant lights; names interwoven into American Medicine. Words of equal praise can be said of the history of the *Annals of Medical Practice*. But while it is the fate of all men to pass and of new ownerships of things inanimate they need not cease to be. Existence is more than a name; history is not written to perish, but upon the scroll of time: imperishable.

It is not thought that the new will excell or, perhaps, equal the old in the future, but assurances can be, and are here given, that to



the limit of his capacity the Editor of *THE AMERICAN PRACTITIONER* will endeavor to fulfill the mission undertaken; to guide it in the same helpful and honorable way of its predecessors. After all, a medical journal is what its clientèle desire and what they make it. The Editor must work with what material he has at hand, and this material must come largely from its subscribers. If they will supply him with their best, and he be a good workman, the finished product will be satisfactory. If not, then it must cease to be. It remains, therefore, largely with our readers and contributors as to how good or useful the journal may prove. Let us, therefore, have your help and encouragement, and we will serve you with earnestness.

With sincere hope that the new relations begun with this issue of *THE AMERICAN PRACTITIONER* may result in a full measure of helpfulness to the readers, thus insuring full compensation to the humble Editor, the subscribers servant, we here in your presence, make our bow, with hat in hand.

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#### PROGRESS IN CANCER THERAPY

Cancer has ever been one of the most baffling, as it has certainly been one of the most dreadful, of all the untoward phenomena in our profession's experience. It would seem that we may now be really sanguine of an effective curative agency, as apart from surgical procedures; although the utmost conservatism is still essential, in order that the afflicted may not be led to cherish unrealizable hopes.

We find in the cancer problem a typical illustration of the inexorable laws of compensation upon which Emerson dwelt, that whilst we have accomplished a notable reduction in the tuberculosis death rate, that of cancer seems to have undergone a reciprocal increase; it seems measurably true that young people do not now so frequently die of tuberculosis—that disease of adolescence and early middle life,—but succumb instead in later years to cancer. Another phase of this law of compensation is that, whilst tuberculosis gleans its greatest harvest from the physically exhausted and the poverty stricken—civilization's submerged strata,—cancer does its gleaning rather from among the well-to-do in life, from the enlightened and those accustomed to sanitary existence. In London,

for example, the greatest cancer mortality is found, not in the East End, in "Darkest London," but in Hempstead, Marylebone and Chelsea, which include the wealthiest vicinities in that cosmopolis.

In New York, the crowded tenements are comparatively immune from cancer, whereas this disease thrives in the more salubrious parts of the Western metropolis. Indeed, healthful conditions would, strangely enough, seem for cancer a more congenial and fruitful environment than those in which such diseases as tuberculosis, typhoid fever and the exanthemata flourish. Patrician cancer has a predilection for the homes of the prosperous, scorning those of the squalid and the miserable; it is comparatively rare in prisons, workshops and insane asylums. Prostitutes do not frequently suffer; is it because these victims of the world's basest passions so seldom reach middle life? Cancer loves a shining mark—it has a venomous penchant for those of great promise, of great worldly importance in and to their communities; for those who have, through many years of great activity, fairly earned an illustrious and happy old age.

The search for an adequate and measurably successful cancer cure, as apart from surgery, has indeed been long; and epic has been the devotion and zeal of the workers upon the problem. We may refer here only to the researches and the experimentation of Ehrlich and Wassermann, and of their colleagues and assistants.

Wassermann, after most exhaustive research work, has evolved a chemical compound from selenium, tellurium and eosin, which seems to be a real specific for cancer and other malignant tumors in mice. Ehrlich is reported to have attained even more marvelous results: to have evolved a compound from several chemical agents that has cured 100 per cent. of mice treated for malignant growths. The nature of Ehrlich's compound is not yet announced; nor should it be until this great scientist in his wisdom is prepared to demonstrate its value against malignant tumors in man. It would seem, however, that thus far there have been no relapses after the cures affected in rodents: it was employed with these good results in mice in which cancerous growths had been induced artificially, as well as in mouse cancer of spontaneous origin.

The extreme caution with which both these great masters in the

new science of chemotherapy announce their discoveries is evident in their declarations that years must pass before a compound can be evolved which may safely be applied against human cancer.

It is here noteworthy that Professor Kiliani, of Columbia University and the German Hospital in New York City, has been studying in Europe the work of Ehrlich and Wassermann; during March, he purposes to address metropolitan physicians on the results so far achieved by Wassermann's preparation, which he terms "nigrosin." Whilst applauding the conservatism of Ehrlich and Wassermann, Kiliani states his belief, from his private detailed observations, that the achievement under consideration is one of the most stupendous of modern science. We earnestly hope it may prove so. Kiliani believes "the theory evolved can be considered solved. Both Wassermann and Ehrlich are cautious men. It is only natural that they will not consider the treatment of human cancer with the specific until many experiments have been successfully carried out with mice and other animals, but we think it is to be expected with the utmost probability that within a comparatively short time the treatment of human cancer will enter upon an entirely new phase. What they are doing is to inject into the veins their medical preparation, consisting of eosin and selenium. Of these two bodies, eosin has an elective quality; it alone is carried into the diseased cells and does not affect the healthy parts of the body. Selenium, on the other hand, has strongly reducing qualities, whereby oxygen, which is so necessary for the rapid growth of cancer cells, is withdrawn." Again we beg to express the caution (despite the sanguine tenor of Kiliani's statements) to hold to a wise conservatism in these premises, in order that the stricken with malignant disease may not be doomed to disappointment.

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### LONG LIFE

Much has been written in recent years of ways and means to prolong life, the statement being made and accepted by many that man could live to one hundred years providing he comply with certain fixed formulas for diet and certain usages regarding habits. Unfortunately, however, the much discussed ways and means vary to such a degree that we become confused and adopt such as our

own desires or habits prompt. Even those that appeal to us most strongly are not easy of successful adoption. When physical discomfort overtakes us, we look around for immediate relief, and become rebellious when the physician cannot bring it. It is then that the layman gives heed to the numerous fads or theories of the unscientific, and selects one or more for individual experiment. But there are rough places to cross and jolts to encounter, and many fall by the way as do those from the water wagon, and thus with restricted diet, health foods, buttermilk, uric acid solvents, electricity, liver pills, dyspepsia cures, or travel, we plague ourselves, but to what end?

So long as man continues to indulge himself in the refinements of society and the luxuries of eating and drinking; in the taxing of his mental capacities, just so long will he sooner or later come to grief. When the break comes, he will cry aloud for help, and relief will probably come if under careful individual treatment. If the debt be not too great, he may attain a cure; but unless our customs and habits are radically changed; unless these changes date from birth, or even antedate birth, and we can abandon excesses throughout our lives, our heredity be altered, and environment changed, it is not likely that our life expectancy will attain one hundred years. Even as at present, with a world-wide average life of between forty and forty-three years, we are crowding one another. It is becoming more difficult for the man of sixty to retain or secure work, and thus our eleemosynary institutions are becoming more numerous. We are told this is an age for young men, men under forty; what then would become of the man of seventy or eighty? If he be wealthy and have reasonably good health, he can continue without becoming a burden to his family or the State. If otherwise, would the average man as at present not become an incumbrance, and would he not rather enter into that felicity promised to the good and faithful, than to pass to the care of the State or unsympathetic relatives?

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#### COLDS, AND HOW TO AVOID THEM

It is not because we breath cold air that colds are more prevalent in winter than in summer, for cold air is more healthful than warm, even though the warm air be as pure, which is seldom the case.

Cold air is a stimulating tonic to the lungs, and when breathed increases the circulation of the blood, this increasing the elimination of waste products. It is not the temperature of the air alone, however, as much as what the air contains and one's physical condition or resistance. The air must needs be as pure as possible, and this is best attained by a constant ventilation: exchange of cool or cold air from without for the devitalized or oxygen exhausted air from within. Air that is not constantly purified by an exchange of oxygen for carbonic acid is not only injurious to health, but so enervates or weakens one that the normal resistance is destroyed, thus predisposing to not only colds and what follows, but to other complaints even more serious. A relaxed condition which is so apt to be present at the change of seasons: following a warm summer and the advent of unexpected cold of autumn, usually finds us unprepared for the change; the furnace has not been fired, windows and doors are securely closed thus shutting off the interchange of air, while an extra gas jet or lamp is lighted thus more completely consuming the oxygen present and increasing the poisonous exhalations. Much to our surprise, we arise in the morning with a headache, or worse, a cold.

Mouth breathing in children is a chief source of colds. Such children should have their nose and pharynx examined, and any obstruction removed. They should then be carefully taught to breath through the nose. Ear troubles are frequently traceable to colds.

Then those who live in cities, especially those who live mostly indoors, persist in wearing heavy woolen underclothing as well as too many outer garments. Linen or cotton underwear is much more healthful and sanitary for winter wear than are woollens, especially for those who live mostly within doors. Drafts are feared by most persons, but drafts alone do not cause colds; while closing the living-rooms against drafts favors the growth of bacteria. It is the stuffy, unventilated room that is largely responsible for colds. To exclude drafts, is to live in a motionless moist air, poisoned with the noxious exhalations of those in the rooms. Treatment for colds should consist of a hot footbath at night, followed by a glass of hot lemonade and whiskey or hot milk. Keep the skin dry by frequent rubbing



with a coarse towel, and remain indoors on a light diet for two or three days. When going out, do not bundle up the neck or wear heavy underclothing. An extra outer garment will be preferable. Exercise out of doors, deep breathing, temperate eating and drinking, plenty of sleep and cool, well-ventilated living-rooms, night and day, will ensure freedom from colds. Finally, quinine is not a cure or prophylactic for colds, and, if taken at all, should be taken only in small tonic doses.

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### THE FOOD VALUE OF CHEESE

The Welsh have conferred some notable blessings upon the race, but none certainly greater than the rarebit—or is it the rabbit? The English miners are glad to get the poor cheeses made in the United States. But the American citizen, blind to his privileges, eats 170 pounds of expensive meat per capita a year, besides fish and poultry in proportion—but only four pounds of cheese. The reasons for this are mere custom and lack of knowledge, in the opinion of the Department of Agriculture at Washington, as expressed in its circular on “The Digestibility of Cheese.”

Great is the nutritional value of cheese; for this food contains, in unusually concentrated form, quite every essential to human sustenance. All kinds, even the much flavored and so-called Continental brands, are highly nutritious. Cheese has been ever held to be a stimulant to digestion when taken with the salad or at the end of the meal; *bon vivants* say of it that “cheese digests everything but itself.” Nevertheless, cheese has been demonstrated to be a very digestible food when taken, not as a condiment, but as the chief factor in a meal.

The Swiss eat largely of cheese, this food with bread forming the greater part of the dietary among this very healthy people. The sensible Germans consume large quantities of the cheap but highly-flavored skim-milk cheese, one popular variety of which is officially accredited “perhaps the most pungent odor of all the varieties of cheese made”—the sort which military men would salute as being of superior rank.

The French also have some very highly-flavored cheeses, in which

the bacteria do really seem to be working overtime; concerning such cheese, etiquette seems to require that at table one should ask, not that it be passed this way, but that it should be directed this way. Nevertheless, these cheeses are wholesome. One may recall here the rejoinder to a gourmand, who, having consumed some Roqueford, observed that like Samson he had slain his thousands and his tens of thousands: Yes, and with the same weapons.

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ALL mental states, no matter what their character as regards utility may be, are followed by bodily activity of some sort. They lead to inconspicuous changes in breathing, circulation, general muscular tension, and glandular or other visceral activity, even if they do not lead to conspicuous movements of the muscles of voluntary life. Not only certain particular states of mind (such as those called volitions, for example), but states of mind as such, *all* states of mind, even mere thoughts and feelings, are *motor* in their consequences.

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THAT poise is to the physician a very valuable asset can not be doubted, for poise stands for quality, self-reliance, purpose, confidence, personality; without poise is mediocrity, improvidence, lack of esteem and of success. The physician with poise unmasks calamity, reassures the weak or despondent, dissipates trouble, irritates hope; it assures personality. He is never surprised, never quarrelsome or dictatorial, rude or evinces suspicion; never perturbed. There is never falsehood or boasting in the man of poise. He differentiates sharply between the true and the false; has concentration and exercises patience. Happy the patient whose physician has poise.

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OUR readers will be interested to know that Prof. Dr. Carl Von Noorden, of Vienna, has accepted the invitation of the New York Post-Graduate Medical School and Hospital for a series of lectures on problems of metabolism for October, 1912.

## DIGEST OF CURRENT MEDICAL LITERATURE

*Psychoanalysis and Correction of Character.*—Some form of psychathery has undoubtedly been in use since the beginning of the race. The priest-doctor, when dealing with a mind diseased, would first try exorcism, hoping thus to expel the devil or demon that was possessing the patient. Failing in this, he would employ some such pharmacotherapy as the administration of asafetida; and the prognosis was indeed bad when an evil spirit could remain in a body saturated with such a substance. The thoroughly scientific Hippocrates appreciated and no doubt experienced the value of suggestion. In the middle ages, Paracelsus, "who was not altogether a quack," employed "magnetic healing." Mesmer, a century ago, was able to convince the most brilliant and intellectual minds in Europe of his powers. Then came animal magnetism, the assumptions of Mme. Blavatsky and her like; spiritualism, Dowieism and Eddyism as curative agents. So that to-day hundreds of "faith cures," "mind cures," mental healing and the like infest our civilization. Nevertheless, these charlatanries have had their uses, in that they have attracted wise and honorable men to the study of such mental processes as might lead to the formulation of a rational psychotherapeutics. Thus the labors of Beard, Myers, Charcot and their colleagues evolved hypnotism. It was presently found, however, that this might prove a dangerous agency in the hands of the incompetent or of the unscrupulous; by its means another psychosis might be substituted for that which it was sought to dissipate. The superb "psychanalytic" Janet and the labors of such men as Dubois and Jastrow followed, so that suggestion, by which we seek to influence the subconscious mind, is now much in vogue as a psychotherapeutic measure.

Scripture, whose work has been most notable in this field, has observed that a paresis character is unknown to himself. When his characteristics are told him, he instinctively adopts an attitude of opposition. Direct correction proceeds against this resistance. But when the characteristic appears to the person by psychoanalysis, it has the effect of personal discovery which impresses itself deeply on his mind. Methods must be used revelatory of just those most fundamental traits that are unknown even to himself; one such is the objectification method of Jung, by which the patient is instructed to report all impromptu thoughts concerning the doctor that occur to him.

Dreams, again, are remarkably effective in revealing unsuspected traits of character. The incidents of dreams are termed their

manifest content; and dream study has established as a first principle that the manifest content is derived mainly from events of the day before or of a recent time. Again, such study has demonstrated that dreams are largely made up of realizations of wishes that have not been fulfilled in reality. The fact of the wish does not appear to the dreamer. He does not dream that he is wishing something, but that he has it. The wish is an element deduced from the incidents of the dream. Such elements established by deduction belong to what is called the "latent content" of the dream. In many cases the latent content of the patient's dream expresses a wish; the manifest content shows what the wish is about. The latent content of dreams consists of the personal impulses of the dreamer. Scripture would substitute this principle for Freund's statement that a dream is an expression of a wish. At least two fundamental impulses are present — wishing and fearing; and they may both be present in the same dream.

Why do the personal impulses have more effect in dreams than in making life? In making life our wishes, fears, other emotions and instincts, our ideas of our own importance — in short, all our feelings and ideas concerning ourselves, are subject to overpowering modification and repression by our surroundings. We do not eat just as one likes because custom confines us to meal times. If we see an enticing bunch of grapes in a fruit store we do not help ourselves, because we know we shall get into trouble unless we pay for them, etc. But in sleep we are not so forcibly reminded of these restrictions; and we can let our thoughts come far more freely.

What is the relation of the manifest content to the latent content? The latent content contains the fundamental impulses of the person, the manifest content expresses them directly or in symbols. How does the habit of translation into symbols arise? When we allow ourselves to think freely many thoughts arise at each instant. Automatically we select those that are most intimately connected with the main topic of thought. This automatic control extends even to the topics concerning which we allow ourselves to think. From earliest infancy we are taught to control our impulses. In early childhood we learn that there are topics of which it is quite improper even to think. Automatically we learn to shut off all thoughts that arise concerning such topics (as, for example, of sex); we simply do not allow ourselves to think about them. If, however, we can disguise a topic by putting it into symbols, then it can be thought about. A dream will often present at great length in allegorical form some topic which in its reality would be unacceptable to the dreamer. The symbolism of dreams is exactly that of daily life put into pictures.

The translation of the dream back into its original elements may occur by having the patient start with any item of the dream and then relate all the thoughts that occur to him spontaneously. This is the method of "running associations"; sooner or later the patient hits upon some thought that he feels is identical with a fact in the dream. The method of running association takes much time; wherefore Scripture tells the patient to write out the dream and to keep going over it during the day, thinking of what events of the preceeding day may have brought about the dream, and looking for any wishes or fears that may suggest themselves. The patient will often come back with the translation worked out. Surprising results are obtainable when these methods are applied to the correction of character.

As to the principles involved in the formation of character: There is first the inherited disposition. The infant arrives with a number of wants, such as air, food, etc., to satisfy which he performs certain acts. The satisfaction gives him relief or pleasure. This instinctive feeling of want needs a special name—which we may call "libido." All things and persons which satisfy these wants (this libido) become objects of love. That portion of the libido directed to others we term "hetero-erotism," that directed toward the person himself is the "auto-erotism." The original libido which was directed toward bodily wants and satisfactions may be turned into other channels—as, for example, the sublimation of the libido into ambition, scientific spirit, or the like. Among Scripture's many illustrative cases is that of a college professor who, as a youth, had sexually been absolutely abstinent, but had been driven by a wild ambition to achieve distinction in science. His laboratory he had fitted up with care for details of decoration and beauty such as a woman would take in the selection of her clothes; his account of his laboratory sounded like a lover's enthusiastic description; his abnormally strong sexual instinct had been sublimated into love for his laboratory and for his science.

Scripture agrees with Freud, that the permanent traits of character are unaltered continuations of the original infantile instincts, or sublimations of them, or reactions against them. Psychoanalysis is a most effective therapy for character defects; it brings about an intimacy that cannot be obtained in any other way, and it reveals the traits of character that would otherwise remain unknown to anyone. The analysis itself is a vital part of the cure; as the patient recognizes his abnormalities in this way he instinctively corrects them. It is most effective to combine psychoanalysis with educative treatment. It is objected that psychoanalysis takes too much time;



this view is founded on a misconception. The procedure (Scripture holds) is valuable just because in some cases it achieves results in a much shorter time than is possible in any other way; and in other cases it is successful when other methods are hopeless. In character treatment the improvement begins immediately, and the results are apparent from the start.

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*Undernourishment and Growth.*—"Retarded development" means failure to gain in bodily weight up to the normal average. There are two clinical methods of measuring growth: by body weight and by body length. These methods are familiar to pediatricists. But while they both afford the external expression of internal developmental changes, they are not necessarily halted at the same time; indeed, poorly nourished, atrophic children may continue to grow considerably as to mere size. It would at first thought seem anomalous that an individual should exhibit growth whilst there is no increase in body weight. However, H. Aron, in the Philippine Medical School, has carefully measured dogs to ascertain whether growth can be entirely suppressed by food restriction. Among a number of comparable animals, some received just enough food to keep their body weight constant; others received varying additional amounts, so that more or less intensive growth resulted. Aron found that if a growing dog is kept at a constant weight, or even at a slightly decreasing weight, the bones continue to increase in weight, and, therefore, to grow, although not quite so rapidly as a normally fed control animal. If the bones have absolutely and relatively increased in weight, whilst the total weight of the animal has been kept constant, other parts of the body must obviously have lost in weight. Apparently, the glandular organs are not seriously involved in this process of consumption. The analyses indicated that the tissues which have undergone loss during the underfeeding are the muscles and fat. The brain has nearly the same weight in a growing dog kept at constant weight as in a normally developed animal; this observation reminds one of so-called infantilism, in which children may exhibit a marked mental development despite the retardation of growth in its more obvious aspects. The losses in Aron's dogs, aside from the fat, involve a quality of protein, especially from the muscles; whilst a great proportion of the body tissue, notably in the blood, is replaced by water. The latter, with the increase in the skeleton, replaces the body materials lost. During the period of growth, a stationary condition in respect to body weight may actually be the expression of starvation; only in the last stage of emaciation, when there are no body reserves to draw on, is growth entirely suppressed.

Like observations have been made by Waters on growing cattle. Ungrown animals that had been previously well nourished continued to increase in height and in width of hip for a considerable length of time, even though on a starving ration. Apparently, the animal organism is capable of drawing on its reserve for the purpose of sustaining the growth process for a considerable time and to a considerable extent. His experiments indicate that after the reserve is drawn to a certain extent to support growth, the process ceases and there is no further increase in height or in length of bone. From this point on, the animal's chief business seems to be to sustain life.

Few comparative measurements have been made on undernourished children; however, Freud's data point to similar phenomena in human development, where some growth in length is not checked by underfeeding. Aron concludes then that "the tendency to grow in a young animal is greater than the tendency to maintain life." The tendency to grow is possessed principally by the skeleton, which sets the pace for the other tissues to follow if possible. The capacity to grow is not necessarily lost through early malnutrition; realimentation and renewed growth follow more, or less normal courses, so that earlier losses may be regained. The facts here reviewed are important to the practical pediatrician. A child which does not increase in weight, or increases slowly, is so undernourished that part of its own body substances are being consumed. More than this (declares Aron), if a child does not present the weight we have a right to expect at its age (assuming that it was born with a more or less normal weight) this child's body does not have the normal composition. It will contain a higher percentage of bones, a lower content of fat and muscle tissues, and a higher content of water. The proper feeding of such children is fundamental.

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*Arteriosclerosis.*—There is no specific treatment any more than there can be a specific therapy against old age. Hardened arteries are indicative of old age irrespective of the number of years the patient has lived. We must regulate the patient's life. Various symptoms arise from time to time, and they must be met accordingly. It has been held that an elevated blood pressure requires reduction invariably; and many vasodilators have been recommended. However, Cowen, in *THE PRACTITIONER*, very well points out that in arteriosclerosis the high blood pressure is really a conservative process, an attempt to remedy the oncoming circulatory difficulties; and that interference with such pressure may not be helpful, and may even prove harmful. In the presence of symptoms, pressure may be temporarily high, to fall with improvement; there are cases in which

such heightened pressure, in the absence of symptoms, is always above normal. It is not rational to conclude that because the blood pressure may fall coincidentally with improvement, this will occur whenever and however the pressure is lowered. Oftentimes this can only be done by depressing the cardiac action — by inducing cardiac failure. And yet experience has shown that in certain cases vasodilators are servicable. In angina pectoris amyl nitrite inhalation is often most valuable during the paroxysm, as well as is nitroglycerin internally between attacks. But the action of all such drugs is very transitory; erythrol tetranitrate is said to have the most prolonged effect, yet this endures but five or six hours. Nor have the continued use of the nitrites had any appreciable effect upon the blood pressure curves. Cowan finds it difficult to understand the high reputation of iodine and the iodides in this disease, since they exercise little or no influence upon the blood pressure, and their action upon fibrous tissue is likely to be effective only in syphilitic cases. Yet moderate doses of the iodides should be given, iodism being guarded against. Mercury has a well established reputation in arteriosclerosis, from its action in increasing venal and intestinal excretion and in limiting bacterial processes in the intestinal tract; calomel and blue pill are the most useful preparations. The buccal toilet must be carefully supervised, especially in cases where the venal symptoms are prominent. In patients who are more or less convalescent, these drugs should be given intermittently rather than continuously; the effects will be best marked when they are given alternate weeks or fortnights, with occasional longer intermissions.

Beverly Robinson, of sound physicianship, whose experience has been very great, finds hypertension in itself not an indication for active therapeusis. He does not now so frequently as formerly administer digitalis and the iodides in advanced arteriosclerosis; he prefers strophanthus, caffeine and nux vomica; he prefers also sweet spirits of nitre to nitroglycerin.

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*Heart Tumors.*—In a case recently come upon by this writer, the diagnoses of aneurism was the prevailing one, although others were forthcoming. The real lesion was not, however, identified during life; the autopsy demonstrated an enormously dilated left auricle. H. L. Peters and L. S. Milne have reported in the *New York Medical Journal* three cases of malignant disease with cardiac metastasis; a cancer of the rectum, a cancer of the stomach, and a mediastinal lymphosarcoma. In the last of these, metastasis occurred by direct extension; in the first two, apparently by the blood stream. The symptoms of heart tumor are very varied, there being

no definite pathognomonic sign. Palpitation, precordial pain, dyspnea, arrhythmia and cyanosis are very suggestive. Oftentimes even an extensive lesion is discoverable only at autopsy. In the diagnosis of mediastinal lesions in which those of the heart must be included, we strive to make out an abscess by the history of an injury, by aspiration, the fluctuating character and sepsis. A precordial effusion has its area of dulness more pyriform than in tumor, and there is fever. Pleurisy with effusion is acute, has fever, and its signs are referable to the lower part of the chest.

Syphilis is distinguished by the general history and symptoms, and the results of treatment (iodides, mercury, salvarsan). Lymphadenoma are found also in the neck and groin, and are a part of the systemic Hodgkin's disease.

Tubercle is manifested by the symptoms of general tuberculosis. Sarcoma is more frequently primary than secondary, affects rather the anterior mediastinum, attacks especially the young and the middle-aged, and is more rapidly fatal than cancer.

Cancer is considered to be generally secondary in the mediastinum; it affects advanced life. The sufferer from either cancer or sarcoma will succumb within a year.

There may be (there usually is) very great difficulty in the diagnosis between tumor and aneurism. Both cause pressure symptoms. Distinct pulsations are transmitted by aneurism, solid tumors, or a tense abscess; posterior mediastinal tumors are very likely to simulate aneurism; furthermore, with the growth of the tumor, the heart and aorta become overlapped, so that we may have pulsation and vibration, with bruit. We note, however, that tumor tends to develop rather inwardly than outwardly; it does not so frequently corrode the thoracic walls as does aneurism. The latter will endure beyond eighteen months; tumor develops more rapidly, has no diastolic shock, or ringing aortic second sound, has (except as just observed) no thrill or bruit or expansive pulsation, has rarely tracheal tug (downward movement of the larynx), is often attended with pleural effusion. The malignant tumors will evidence other growths in the neck and axilla. The pain of aneurism is sharper, more uniformly present, and it radiates more commonly to neck, back and down the arms; aneurism has, in any event, its thrill, bruit and expansive pulsation more pronounced than in tumor. The diagnosis of aneurism is favored by improvement under the iodides.

The treatment of mediastinal lesions is most unsatisfactory. Tuberculous and specific lesions are treated, as also lymphadenoma, according to the general therapeutics of those diseases. Otherwise, the procedures must be mainly surgical. The thoracic cabinet of

Dr. Willy Meyer obviates the danger of collapse of the thoracic tissues during operation through atmospheric pressure, and makes possible many operations on the thorax which were otherwise unjustifiable. The sternum may thus be resected, and tumors may perhaps be removed from the anterior space. Effusions and pus may be removed by paracentesis. Mercury, arsenic, the iodides, salvarsan, tuberculin are invaluable remedies in appropriate cases. Morphin and other narcotics and sedatives (chloral, bromides, sulfonal) allay pain, irritability, insomnia and cough. Dyspnea and laryngeal spasm are relieved by Hoffman's anodyne, or by inhalations of oxygen, chloroform or camphor in acetic ether (1—10); or camphor in oil of sweet almonds (1—10) may be given hypodermically. Besides palliative measures, many secondary effects may be relieved. Rest of the body, freedom from all kinds of disturbances, change of air, maintenance of the general nutrition, hygiene are essential. Iron and the hypophosphites will serve. Symptoms of accompanying lesions or diseases due to tumor pressure (bronchiectasis, pneumonia, emphysema) must receive appropriate treatment.

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Dr. S. M. Robertson, in his annual report as Physician-Superintendent of the Royal Edinburgh Asylum for the Insane, instances three recoveries in cases, at least two of which would twenty years ago have been deemed incurable. The first patient, having the insanity of myxedema, was, owing to the absence of the thyroid secretion, increased in weight, her movements became slow, the expression of her face changed completely, and the tone of her voice became exaggerated; she became childish in mentality, expressed silly delusions, and heard imaginary voices. She was given tablets prepared from the sheep's thyroid, and within a week she was transformed from a misshapen, stupid object into a bright and pleasant featured woman. She became quite unrecognizable as the creature of the week before. Centuries ago such kaleidoscopic changes would have been put down to magic, the spell of an offended wizard transforming her body and soul; and a counter charm restoring her original shape and personality. To-day every physician knows the secret, and people have ceased to be astonished at such things. Nevertheless, here was a miracle of science.

Robertson's second unusual case was due to excess of thyroid secretion in the blood; she was in consequence very nervous and excited, with tachycardia. The theory is not yet established that excess of thyroid secretion is neutralized by a substance in the blood.



## THERAPEUTIC PROGRESS

**The Action of Iron in Chlorosis:** In the *Therapeutische Monatscheft*, January, 1912, Dr. Heubner, of Gottingen, points out the advantages of combining arsenic with iron in cases of chlorosis, in which the organism is incapable of appropriating the iron in the food to the building up of hemoglobin, etc., to the same extent as in the case of a healthy organism. Through medication in which the iron may reach the blood-forming cells, by the addition of arsenic, together with nourishing food, the synthetic action is augmented.

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**Arsenic Poisoning from the Fumes of Coke Used to Heat Iron:** Six cases of poisoning traceable to the coke used in heating the irons in a laundry, causing the illness in turn of six laundry women, is reported from Chester, Eng., by Drs. J. G. and E. V. Trubshaw in the *British Medical Journal of December 16, 1911*. The coke was found to contain 0.0001% of arsenic, and its ashes 0.0002%; thus four-fifths of arsenic blended with the air of the room. On substituting coal for coke in heating the irons no further inconvenience was experienced.

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**Ristin:** This new remedy, which is highly recommended by Dr. Neuberger, of the Nuremberg City Hospital (*Münch. Med. Wochensche*, 58, 1911, p. 2220), is colorless, odorless and tasteless. Ristin is placed on the market as a 25% alcoholic solution of the monobenzoic acid ester of Ethylglycol, through the addition of glycerine.

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**Boison:** A preparation of casein with other ingredients, forming a fine, grayish-brown, odorless powder, not unpleasant to the taste, and still less so when dissolved in warm water. Among those physicians who have recommended it to their patients is Heim (*Berl. Klin. Woch.*, 1904, p. 593), who in 100 cases found it to be a nonirritating, nourishing nerve tonic, promoting appetite.

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**CITARIN:** A white granular powder, mildly saline to the taste, readily soluble in cold water. On warming the solution formaldehyde is set free. Heating carbonizes without melting it. Indicated in acute attacks of gout and in aggravated paroxysms of chronic gout.

Dr. Fisch employed this remedy in his own case to check four acute attacks of gout, taking 2 grm. 8-10 times daily (*Deutsche Med. Woch.*, 1903, 9.938). The benefit derived from the remedy depends greatly on its administration at the first symptoms of the attack. With the exception of a slight diarrhea no unfavorable effects were perceived.

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**Acidol:** Forms colorless crystals that dissolve readily in water, less readily in alcohol, and contains 23% of hydrochloric acid. It is indicated as a remedy in the place of plain hydrochloric acid, which is freed from it in the organism. It is harmless.

Dr. Flatow found that acidol has the same effect as free hydrochloric acid. He recommends it also in the form of the well-known hydrochloric pepsin tablets (*Deutsche Med. Woch.*, 1905, p. 4754).

Dose:  $\frac{1}{2}$  to 1 gm. in water.

**Gomenol:** An etheric oil obtained from myrtacea melaleuca viridiflora. It contains 60% cineol, some terpineol and traces of acetic acid, butyric acid and valerianic acid ester.

Employed in diseases of the respiratory organs, in whooping cough, inflammation of the bladder, nerve pains, etc.

Drs. Leroux and Pasteau employed gomenol with success in tuberculosis of the lungs (*Aertzl. Rundsch.*, 1898, 48, 49).

**Vitose:** Glycerine albuminate, a yellowish, odorless, neutral, transparent, basic salve, nonirritating and not becoming rancid. It may be blended with glycerine and water and yet retain its original consistency.

Dr. Quastler recommends it for use in massage in preference to vaseline, as it can be washed off immediately after the treatment. It also facilitates the massage and softens crusts on the skin (*Aertzl. Zentralztg.*, 1905, 32).

It has proved efficacious in eczema of the scalp or face, and seborrhea sicca was speedily cured by vitose.

**Perdynamin:** A liquid, palatable preparation of hemoglobin, consisting of 65.7% water, and up to 105 degrees of volatile elements, 32.2% of solid elements (33.6% organic and 0.61% inorganic), besides 1.46% of combined nitrogen, 0.04% sulphur and 0.03% of phosphorus (Lebbin and Breslauer).

The small amount of iron in this preparation is considered an advantage by Wischnowitz (*Wien. Med. Presse*, 1905, No. 22), as from one to two doses of 0.1-0.2 gm. may be taken daily without bad effect. The small percentage of phosphorus is another advantage. Dr. Wischnowitz employed it with good results in primary chlorosis, secondary anemia, scrofula and phthisis, and also in convalescence after acute infectious diseases.

**Captol (Tannin-Chloral):** A dark-brown hygroscopic powder, readily dissolved in hot water or alcohol, less readily in cold water. It undergoes decomposition through alkalis, becoming darker in color, which is remedied by the addition of acid. It lessens secretion and is antiparasitic.

Dr. Eichhoff (*Deutsche Med. Woch.*, 1897, No. 41) recommends it in seborrhea capitis and defluvium capillorum (falling of the hair), and also as a prophylactic, harmless hair-wash, according to the following prescription:

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Captoli	}	ā ā 1.0
Chlorali-hydrati		
Acidi Tartarici		
Ol. Ricini		0.5
Spir. vini (65%)		100.0
Ess. flor. æth. q. s.		

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**Saccharosolval:** An organotherapeutic preparation obtained through the action of salicylic acid on the diastatic ferment of the pancreatic juice, and on the substance of the spinal marrow. Employed as a specific in diabetes mellitus. That its action is not always effective is shown by Dr. Fleischer (*Ther. Mon.* 1905, p. 467), also by Drs. v. Noorden and Kaufmann.

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**Barutin:** Is a white powder, containing 16.9% of baryum chloride and 20.5% of theobromin. Used as a diuretic.

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In addition to Brat, who discovered its value, Dr. Biebergeil (*Deutsche Med. Woch.*, 1905, p. 584) found that, given in doses of 0.19 and 0.3 gm., it had a diuretic action and prevented dropsical effusions, and also that the diuretic effect of the baryum was shown in the smaller and of the theobromin in the larger doses.

Single dose: 0.1-0.25 gm.

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**Gasterine:** A mildly acid liquid preparation similar to ordinary gastric juice; its employment is indicated in derangements of the digestive organs. The preparation is palatable, clean and sterile.

Finkelstein (*Zentralbl. f. Stoffw. und Verd.*, 1900, I, 9) speaks highly of it, having employed it with good results in nine cases of cancer of the stomach and in seven cases of typhus. The French preparation, according to Weichelheim and Kramer (*Münch. Med. Woch.*, 1904, No. 32) produced no lasting effect, and even in larger doses was very little more effective than the simple hydrochloric acid and special solutions of hydrochloric acid and pepsin.

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**Valofin:** A concentrated distillation from valerian root and peppermint leaves, forming, when diluted, a palatable liquid which, in addition to the active constituents of the drug, contains also valerianic acid, partly in the form of a valerianic acid ethyl ester and of valerianic acid-ammonia. Used as a substitute for infusions of valerian and peppermint.

Dr. Mode (*Ther. Mon.*, 1905, p. 601) employed valofin in fifteen cases of neurasthenia and insomnia, in thirteen of which the results were satisfactory; in the remaining two, uncertain.

10-25 drops on sugar, or in hot, sweetened water.

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**Cycloform:** Rosenberg (*Revue Hebdom. de Laryngol.*, No. 14, 1911) recommends the insufflation of cycloform, unmixed, as a powder, in the treatment of the dysphagia, or painful swallowing of consumptives, and in other painful affections of the throat. Cycloform is free from injurious side-effects, and affords relief from pain, the effect increasing under repeated application. There is no objection to leaving the remedy in the hands of the patient or his friends, to be used as occasion demands.

**Oxaphor (Oxycamphor):** A white crystalline powder, is more soluble in hot water than in cold and readily soluble in other solvents. It is employed as a sedative in dyspnea, nervous asthma, etc. Oxaphor does not affect the heart's action and has a soothing effect on the respiratory system. Dr. Schreiner tested this remedy thoroughly in whooping cough and found that, in most cases, oxaphor promptly checked the frequency and intensity of the attacks of coughing. The fact that it does not affect the heart recommends it in serious complications, such as bronchial pneumonia and croupous pneumonia (*Ther. Mon.* 1903).

Dose: 40-60 drops in a spoonful of water, fasting, should be administered daily. As oxycamphor loses its strength when container is opened, a 50 per cent. alcoholic solution under the name oxaphor is used, this being permanent.

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**Pergenol:** Dissolved in water, produces peroxyd of hydrogen and borotartarate of sodium. Useful in pharyngitis and sore throat of bacterial character.

Dr. Korte, of Dantzig (*Ther. d. Gegenw.*, 1912, No. 1), speaks highly of it after two years' experience, both in the form of tablets—one dissolved in water as a gargle, and in the form of pastiles to be held in the mouth until slowly dissolved. Pergenol medicinale powder is a valuable styptic in operations on the nose and throat, and to insufflate the wound daily after the operation. Dr. Korte also found the powder beneficial in the ulcerating form of tuberculosis and in laryngeal syphilis, the treatment being by insufflation with an insufflator of his own construction. In addition to insufflation, the gargle morning and evening and the pastiles during the day are recommended.

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**Phytin:** A calcium magnesium double salt of anhydro-oxymethyl-diphosphoric acid, containing 28% of organically latent phosphorus. It is the phosphorus reserve material of plants, and there are deposits of it in all seeds, bulbs, roots, etc., from which it is derived. Phytin is a better medium for phosphorus medication than glycophosphoric acid, lecithin, or the mineral phosphates, the latter being incapable of replacing the phosphorus in the body and of acting on the general metabolism.

Dr. Loewenheim (*Berl. klin. Woch.*, 1904, No. 47) employed it in rachitis, neurasthenia, and in the case of weak, anemic patients. Also recommended it in pulmonary tuberculosis and sexual impotence.

To conceal the unpleasant taste, it is put up also in milk-sugar tablets under the name of "Fortossan."

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**Hydropyrin:** A lively discussion has arisen as to the value of the salts of acetylsalicylic acid known as hydropyrin. Grifa Fränkel (*Deutsche Med. Wochensche.* 37, 1911, p. 1751) analyzed a number of samples in which he found only 0.51% of free acid. They were supposed to contain 3.76% of lithia, but Fränkel found only 3.74%, and concluded that hydropyrin Grifa is a very weakly acid acetylsalicylic-lithia with very slight traces of sodium. Dr. L. Spiegel of Berlin (*Deutsche Med. Wochensche.* 37, 1911, p. 1751) also analyzed some samples and found 3.48% lithia, 0.044% sodium, and 0.9% of free acid. After keeping for three weeks in a tightly closed bottle the acid value rose to 1.22%.

## AT YOUR LEISURE

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### WAS IT A DREAM?

Alone to-night, the past surges irresistibly over us, and we seem to relive our life, revisit the scenes of the years that have vanished, converse with friends long since passed to their sweet sleep. As the fire casts its shadows around the room, and the smoke from our cigar forms itself into fantastic shapes, we look back some fifty years and see again the happy home of boyhood days. The vision recalls the first recollections of our life. A little chap is the centre of the picture, happy as so small a chap should be; wishes gratified in all reasonable things, perfect health, every one, young and old, eager to add to his happiness. A sorrow then felt, but later to be more keenly experienced, was the lack of brother or sister; nothing seemed to quite compensate for this lack. A few years later the father goes away to war never to return. Another few years, and the mother has entered upon the last sleep. There is no longer a home, and this happy little chap that was, has become a youth alone in the great throbbing, busy world. He looks about him in sorrow and fear. There is no one to whom he feels he can go for advice; and thus, without family or money, the future stretches dark and forbidding. But the blood of the pioneer, those who dared to stake their all for a career in the new country beyond the sea; those whose children's children were to become patriots and stake their all for their country's sake, was in this youth. There was work to do, but where and how to find it? To school was the great desire of his heart, and to school he found his way. School and work too were found, for his were willing hands, and ambition then his passion. In the goodness of time a degree, the entering upon the serious and disheartening vocation of medicine, without money or such friends as could help. But let us not dwell upon these times; times which try the soul of many of those who brave fate, for fate is a fickle goddess, and for reasons of her own, reasons good and sufficient, often leaves the individual to stagger and fall, rise again and again to plunge deeper and deeper into the morass of disappointment. Some measure of success, however, is vouchsafed to all men, but one should not brave an environment simply because he is courageous.

Again the picture changes, and we find this man, for whom his teachers and friends had predicted a full measure of success, in commercial life. A number of callings were undertaken in order to find his way, and without another failure. In time there came into his life the one for whom he had waited, and here is again the happiness and content that were his as a little chap in the far-away home. A replica of himself blessed their home; the sun was bright, sky cloudless. Birds sang to him throughout the day their sweetest songs; flowers took on their most beautiful coloring, and the air was scented with odors unknown before. There was music everywhere, while the days were never long enough for him to obtain a satiety of joy.

Again the picture changes, and we are aware that the silent horseman in black has come to bear her away. We stand beside the bier



with the awestricken one, a replica of the little chap of — oh! so many years ago, it seemed to us then, holding fast our hand. But what can we do, we two so helpless without her words, her smile.

“What could our love have done? We tried  
To hold her fast; cried  
To the tender hand  
That we might understand  
The right way, day by day—  
That she might stay.”

Another chapter of this life is ended; one which extended such a little way, was so brief. But the dream continues; for human life is but a story, commonplace to most of us because of the great numbers, and a life story is but a series of chapters. Some are white, written without an erasure or marginal note; others, so different; written in red. Others chapters must be written; but how, where begin. It is more difficult to begin than to write the *finale*.

We shift our chair to better catch the shadows as they pass before us; the cigar is relighted, and other scenes pass kaleidoscopic before us. Out of the darkness of the last chapter comes in time a measure of sunshine, with glimpses of azure, significant of the birth of another day. Seemingly a voice comes faintly to us from the gloom, reminding us of that other little chap. Much is yet to do, and together we hazard the cast for success in other fields, both of locality and energy; but the nights are long, whole days, nay weeks, months without a voice or face; without a care or thought for you or yours; for in the great city everyone is intent on thoughts of self and their's. Perhaps this is for the best.

So the picture again changes; life is real, is earnest, and out of the ashes of the past we rear the edifice of a new life. Success comes, measureably; and a new career is launched, to be made up as all careers are, of chapters.

The last picture presented to our view to-night fades gradually away, disclosing in the distance an angel form in the attitude of waiting; and somehow, we believe, that though the changes wrought in the years since that dreadful morning are many and great, the recognition will be complete.

The cigar has fallen to the floor, the last glowing ember extinguished, while the picture has disappeared, and we awake with a start and somewhat of a shock to another day, for the light of morning comes into our window, recalling us to ourselves and our duties.

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#### FACTA NON VERBA

To be able to declare he was a friend and a good fellow, is to pay the highest tribute to man. How much is meant by the word friend, we none of us ever fully appreciate until when in adversity one whom we have known declares himself by deeds. Words are easily spoken, but do not always mean what a declaration would or should convey. Advice is merely words and as such is most cheerfully and freely given. It entails no obligation and is more often offensive than otherwise, especially when unsought. Deeds are evidences of friendship. *Facta non verba* is the earnest, honest man's

motto. What can I do for you James? the question to be asked by a friend, with a warm hand clasp, a look straight into the eyes, a sincere, honest countenance, open and frank; then the heart melts while confidence is forthwith established. It may be that he has made a mistake, a mistake in judgment only, or is not sure how to proceed; lack of experience or because he is conscientious, honest, and is much worried. Under such circumstances, he is not always competent to determine the best way out of a dilemma. Then the cool dispassionate judgment of a friend is needed and here is the situation that determines the friend, the man. Such a situation comes into the life of all men; often more than once. Here is our opportunity to make a lasting friend, and perhaps through him contribute to the well being of others, those sick or distressed. And once a friend, we should remain such. Things that we do not understand or that we can not at the time be made to understand, should not turn us against a friend. Let us not be too hasty to condemn, perhaps, and probably in time, our want of confidence or faith will be strengthened. And thus a friend present or absent, in good or evil report, until all doubts are cleared away or our confidence destroyed.

Man demands friends, and he that is without them is to be pitied, no matter whether deserving or not. Even the thought of a friend, though he may be absent or dead, often acts as a wholesome restraint to excesses. Once have a true friend and he will be with you to the last, even to eternity. This phase of human nature is illustrated by a story of an Irishman who had been told that he must die within a short time. He called for a particularly warm friend and gave him a memoranda of obligations with money to pay them, asking him to attend to it at once. Upon the friend's return he handed over the receipts and some money that was left. Keep the money, Mickey, and treat the boys on the day of me funeral. Oh! Oh! Paddy, don't talk like that. Yes, I want you to do it. And shall it be going or coming, said the friend. Going mon alive, I'll not be wid you coming. He wanted to believe that somehow or in some way he would be one of them. With all obligations met and the good wishes of his friends the journey would not seem so long, while a warmer welcome would await him in that other unknown country.

Hamlet says to Horatio:

Dost thou hear?

Since my dear soul was mistress of my choice,  
And could of men distinguish, her election  
Hast seal'd thee for herself; for thou hast been  
As one, in suffering all, that suffers nothing."

#### WHAT BECAME OF THE SNOW MAN?

The Snow Man, his hat cocked sideways and pipe in mouth, saw the Fire as it flickered on the window panes, and shivered and shivered all the more because of the glimpse of light, and warmth and comfort. The children had played with him all day long, and now they were telling tales of him at the fireside, or were snuggled up in bed, dreaming sweet dreams of snowy joys to-morrow; and their friend the Snow Man out there in the cold! Besides, his pipe had gone out and he didn't have a match to his name!

Then the Wind blew his hat off and tossed it against the shiny

windows, and tumbled him over and over, until he reached the children's door; and they took pity on him, and set him before the Fire and lit his pipe for him and told him to make himself comfortable until morning.

But the Fire had an old time grudge against him, and pelted him with red sparks, and fussed and fussed with him all night long; and when the children awoke in the morning the Snow Man was gone, and went in such a hurry that he forgot his pipe, for he couldn't stand a fussy old Fire like that!

And the Fire went out, too — maybe to find the Snow Man; but he didn't leave even a track in the snow!—*New York Sun*.

#### NOW DECLARE BACON REWROTE THE BIBLE

The *New York Times* has the following cable from London, under date January 23 — The Baconians now declare that their hero wrote the Bible in the authorized English version.

T. W. Smedley, at the Bacon Society dinner, said the final revision of the authorized version was handed to King James in 1609 and returned by him completed in 1610. During that year a stylist had been at work, and it was not King James. In Mr. Smedley's opinion there was only one stylist in England at that time.

The Authorized Version is the work of a commission of forty-seven scholars, presided over by Bancroft, Archbishop of Canterbury. It was the result of the Hampton Court Conference of 1604, which petitioned King James I to prefer the Genevan Bible to the Great and Bishop's Bibles, or else order a new translation. The commission was then formed, and was at work for seven years, publishing the Authorized Version in 1611. Its English has always been justly admired, and has, undoubtedly, had a profound effect in fashioning the present English tongue; but there is nothing in it that suggests that it ever went through such a hasty revision as a busy man like Bacon would have been able to give it.

At the period when this translation was made, Bacon was Solicitor General of England. He was deeply immersed in all the politics and intrigues of his time, and it is regarded as absurd to suppose that he could possibly have found time to revise, even from the mere stylist's point of view, such a library of volumes as the Bible really is. Moreover, a revision of the style would be certain to affect the accuracy of the translation. A remarkable point in the revised version, made twenty years ago, was the small number of emendations found necessary in the Old Testament. The changes in the New Testament, which were more numerous, were necessitated by the revision of the Greek text and a more profound knowledge of the Greek language. None of them was the correction of an error which might have been caused by a stylist touching up from the literary point of view a bald translation.

Consequently, to accept this latest theory of the Baconians, it would be necessary to assume that a busy lawyer and politician found time, not only to write the plays of Shakespeare, but to go through a work of very great length and polish its translation with quite remarkable attention to the original versions. To state the case is it to disprove it.

## MISCELLANY

*"Men are quite as emotional as women, as a whole,"* recently observed Lord Selborne; to which a London psychiatrist has rejoined that men are indeed by nature more emotional than women. Only by centuries of training and hard fighting have men acquired the power of suppressing their emotions and resisting the desire to burst into tears. Man's real place, it was averred, is the home; and women, who can face a crisis better than men, because they are less emotional and possess more native presence of mind, should be the bread winners. "This old established opinion that women are more emotional than men is really a fallacy; men are more inclined to shriek and become hysterical during exciting, trying times than the 'gentler' sex." It is a mistaken idea that women lose their heads in emotional crises; in sudden emergencies, sudden illness and real danger women always shine. Men lack the natural and instinctive presence of mind which women possess. "If the truth were told, the majority of men would confess that their emotions are more susceptible, more easily moved than those of their wives. Man's coolness and apparent nonchalance on exciting occasions is only surface deep. Inwardly he is trembling with nervousness and emotional fear. The majority of women on similar occasions would be perfectly self-possessed and mentally calm and alert. Women are on the whole harder-hearted than men. Woman does not feel so deeply as a man; she is not so susceptible to the influence of other people.

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ONE of the numerous unique features to be offered by the new McAlpin Hotel, now in course of construction on the southeast corner of Thirty-fourth Street and Broadway, New York City, is a fully equipped miniature hospital, where cases, no matter how serious, can be treated with exactly the same care as in the best up-to-date private sanatorium. It is to be arranged so as to be able to comfortably accommodate twelve patients at the one time. Expert surgeons, physicians and trained nurses will be in attendance, so that surgical operations of any character can be skillfully handled at a few moments' notice.

This practical and extraordinary addition to hotel accommodations is to be situated on the twenty-third floor of this largest hotel in the world, so that a patient can enjoy the same quiet and comfort as though being treated in the most tranquil locality, in spite of the fact that the McAlpin is to be the most centrally located hotel in New York City.

Expert surgeons and medical men have been consulted by Mr. Frank Andrews, the architect of the hotel, and plans are being made for this miniature hospital so that it will be fitted with every modern appliance known to surgery in exactly the same manner as the best equipped hospital in any part of the country.

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#### EXAMINATION OF CANDIDATES FOR ADMISSION INTO THE PUBLIC HEALTH AND MARINE-HOSPITAL SERVICE.

A board of commissioned medical officers will be convened to meet at the Bureau of Public Health and Marine-Hospital Service, 3 B Street, S.E., Washington, D. C., Monday, April 8, 1912, at 10 o'clock A. M., for the purpose of examining candidates for admission to the grade of assistant surgeon in the Public Health and Marine-Hospital Service.

Candidates must be between twenty-two and thirty years of age, graduates of a reputable medical college, and must furnish testimonials from responsible persons as to their professional and moral character.

The following is the usual order of the examinations: 1, Physical; 2, oral; 3, written; 4, clinical.

In addition to the physical examination, candidates are required to certify that they believe themselves free from any ailment which would disqualify them for service in any climate.

The examinations are chiefly in writing, and begin with a short autobiography of the candidate. The remainder of the written exercise consists in examination of the various branches of medicine, surgery, and hygiene.

The oral examination includes subjects of preliminary education, history, literature, and natural sciences.

The clinical examination is conducted at a hospital, and when practicable, candidates are required to perform surgical operations on a cadaver.

Successful candidates will be numbered according to their attainments on examination, and will be commissioned in the same order as vacancies occur.

Upon appointment the young officers are, as a rule, first assigned to duty at one of the large hospitals, as at Boston, New York, New Orleans, Chicago, or San Francisco.

After four years' service, assistant surgeons are entitled to examination for promotion to the grade of passed assistant surgeon.



Promotion to the grade of surgeon is made according to seniority and after due examination, as vacancies occur in that grade.

Assistant surgeons receive \$1,600; passed assistant surgeons, \$2,000, and surgeons, \$2,500 a year. When quarters are not provided, commutation at the rate of \$30, \$40 and \$50 a month, according to grade, is allowed.

All grades above that of assistant surgeon receive longevity pay, 10 per cent. in addition to the regular salary for every five years' service up to 40 per cent. after twenty years' service.

The tenure of office is permanent. Officers traveling under orders are allowed actual expenses.

For further information, or for invitation to appear before the Board of Examiners, address "Surgeon-General, Public Health and Marine-Hospital Service, Washington, D. C."

## BOOK REVIEWS

### **PRACTICAL ELECTRO-THERAPEUTICS AND X-RAY THERAPY.**

By J. M. MARTIN, M.D. Published by C. V. Mosby Company, St. Louis, Mo., 1912. Price, \$4.00.

Written in Texas, published in St. Louis, and reviewed in Boston. And our words cannot tell our appreciation of this very excellent volume. Eastern publishers may well take lessons of Mosby, and Northern practitioners will find much to learn from the words of the professor in South-Western University. Technicalities are avoided. The introduction, indeed, tries to answer "What is Electricity," and succeeds as well or as ill as any other such attempt. Electro-motive-force, E. M. F., is a well recognized entity, however, and is used each year more and more in medicine. "Practical" is the feature which best differentiates this book from others on the subject. Careful study of its chapters which tell of methods of creating E. M. F. and of apparatus for using it, will prepare the student or the practitioner for the later chapters, which tell of the direct applications. Special attention is given to phototherapy, X-ray in eye surgery, X-ray in dentistry, and to the Medico-legal aspects of the X-ray, as newer features of the subject. Two hundred and nineteen illustrations make the text clear and show some of the fine work that Dr. Martin has done.

**PRACTICAL GYNECOLOGY: A Comprehensive Text-book for Students and Physicians.** By E. E. MONTGOMERY, M.D., LL.D., Professor of Gynecology, Jefferson Medical College; Gynecologist to the Jefferson Medical College, and St. Joseph's Hospitals; Consulting Gynecologist to the Philadelphia Lying-in Charity, the Kensington Hospital for Women, and Consulting Surgeon to the Jewish Hospital. Fourth edition, revised and rearranged, with 589 illustrations, the greater number of which have been drawn and specially engraved for this work, for the most part from original sources. P. Blakiston's Son & Co., Philadelphia, 1912. Price, \$6.00 net.

In this, the fourth edition of Montgomery's "Gynecology," we have, not only a rearrangement of the subject matter, but new material, thus bringing the book up to date. This edition gives anatomy, physiology, etiology, diagnosis, therapeutics, and operative procedures, together with a wealth of information under sections microscopic examination, blood examination, malformations and displacements, the uterus and ovarian tumors. The book is printed on fine super-paper with nearly 600 illustrations, most of them we believe new; is handsomely bound in dark cloth, and contains 850 pages. It will be found a most useful work for consultation on all subjects gynecological, as well as serve the student as a text book.

**A COMPEND OF GENITO-URINARY DISEASES AND SYPHILIS,** including their Surgery and Treatment. By CHARLES S. HIRSCH, M.D., formerly assistant in the Genito-Urinary Surgical Department, Jefferson Medical College; Consulting Physician, Social Service Hospital and

Juvenile Protective Association, Philadelphia. Second edition, with 74 illustrations. P. Blakiston's Sons & Co., Philadelphia, 1912. Cloth, price, \$1.25 net.

This is a revised second edition of Hirsch's "Genito-Urinary Diseases," including a carefully prepared treatise on syphilis, with the later or chemotherapy treatment of which so much has lately been written. From Chapter I, which is on the examination of the urine, to Chapter XV, which treats of syphilis, some 350 pages in all, the book contains information of a character that will prove useful to student as well as to the graduate who wishes to polish up. A number of selected formulas are given.

**MERCK'S ANNUAL REPORT** of Recent Advances in Pharmaceutical Chemistry and Therapeutics. Vol. XXIV, 1910. Merck & Co., New York.

This is a new edition (1911) of Merck's "Report," and will be found useful and up-to-date, with authoritative references to new remedies and modern methods of treatment. A general index is given, also an index of diseases, symptoms and indications for treatment.

**MERCK'S MANUAL OF THE MATERIA MEDICA.** A Ready-Reference Pocket-Book for the Physician and Surgeon. Merck & Co., New York.

A very handy and most useful reference book, containing numerous formulas.

**WELLCOME'S EXCERPTA THERAPEUTICA.** A description of various preparations, instruments, etc., marketed by Burroughs, Wellcome & Co., London. It contains much information, including formulas, therapeutic index, etc.

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## PAMPHLETS AND REPRINTS RECEIVED

**A DIGEST OF THE LAWS AND REGULATIONS OF THE VARIOUS STATES RELATING TO THE REPORTING OF CASES OF SICKNESS.** By JOHN W. TRASK, Assistant Surgeon-General, Public Health and Marine-Hospital Service of the United States. Government Printing Office, Washington, 1911.

**OPHTHALMIA NEONATORUM.** An Analysis of the Laws and Regulations Relating Thereto in Force in the United States. By J. W. KERR, Assistant Surgeon-General, Public Health and Marine-Hospital Service of the United States. Government Printing Office, Washington, 1911.

**STUDIES UPON LEPROSY:** Including Immunity, Further Observations in Rat Leprosy, and a Statistical Study of the Nasal Lesions in Leprosy. By various authors. Government Printing Office, Washington, 1912.

**ANTITYPHOID VACCINATION.** Extracts from the Report of the Commission Appointed by the Academy of Medicine of Paris. Government Printing Office, Washington, 1911.

**ORIGIN AND PREVALENCE OF TYPHOID FEVER IN FORT SMITH, ARK., AND MEASURES NECESSARY FOR ITS CONTROL.** By W. H. FROST, Passed Assistant Surgeon Public Health and Marine Hospital Service. Government Printing Office, Washington, 1911.

- THE VALUE OF A LIBRARY TO A COUNTY MEDICAL SOCIETY. By JAMES M. ANDERS, M.D., LL.D., Philadelphia.
- THE INCIDENCE OF SERFIBRINOUS PLEURISY AND EMPYEMA as COMPLICATIONS AND SEQUELA OF PNEUMONIA, WITH REMARKS ON THEIR MEDICAL TREATMENT. By JAMES M. ANDERS, M.D., LL.D., and ARTHUR C. MORGAN, M.D., Philadelphia.
- THE TREATMENT OF AMEBIC DYSENTERY, ESPECIALLY BY APPENDICOSTOMY. By JAMES M. ANDERS, M.D., LL.D. and WILLIAM L. RODMAN, M.D., LL.D., Philadelphia.
- CONGENITAL SINGLE KIDNEY, WITH THE REPORT OF A CASE; THE PRACTICAL SIGNIFICANCE OF THE CONDITION, WITH STATISTICS. By JAMES M. ANDERS, M.D., LL.D., Philadelphia.
- THE TREATMENT OF CHRONICALLY DISEASED URETHRAL ADNEXA IN THE MALE. By LEON T. ASHCRAFT, A.M., M.D., Philadelphia.
- TREATMENT OF TUMOR OF THE BLADDER BY ELECTRICAL DEHYDRATION. By LEON T. ASHCRAFT, A.M., M.D., Philadelphia.
- THE PROBLEM OF CONSERVING THE AMERICAN MEDICINAL MINERAL SPRINGS. By HERMAN G. KLOTZ, M.D., New York.
- THE URINE AND ITS PATHOLOGICAL RELATIONS TO GOUT. By S. R. KLEIN, M.D., Ph.D., Valhalla, N. Y.
- SOME INTERESTING DATA ON RECENTLY REPORTED RESEARCH WORK ON DYSENTERY. By S. R. KLEIN, M.D., Ph.D., New York.

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## ORIGINAL ARTICLES

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### EFFECTIVE AND RATIONAL PSYCHOTHERAPY

ILLUSTRATED BY CASES

By TOM A. WILLIAMS, M.B. C.M. Edin., Washington, D. C.  
*Neurologist to Epiphany Free Dispensary*

So simple is considered psychotherapy by some writers that it is all summed up in words "affirmative suggestion," and the crudeness with which this is carried out is hardly credible to men of common sense were not one to hear the glib utterances of its exponents about their methods.

These are perfectly empirical, are prefaced by no analysis nor more precise diagnosis than at most "psychoneurosis," and consist mainly of an impressive and confident manner and the firm assurance either that there is nothing the matter, or that this "suggestion" has the power of removing all incommoding symptoms.

This procedure is inferior even to that of the Christian Scientist, who does at least change his patient's mental attitude toward something, even though it be by a delusional interpretation of the universe.

Case of Hysterical Hyperesthesia incapacitating locomotion. A young woman, aged 28, whom I saw last spring with Dr. Hardin, to whom she was referred by Dr. Maphis, of Warrenton, Va., in the preceding June had had a chill, after which she cried. The next day she felt very weak, and the following had pain in the knees, she thinks only in the left, with hyperesthesia. There was also, she says, tenderness of the lumbar spine, and later on in the groin and hip. She was treated by massage, and for four months was relieved. About Christmas time, these pains recurred when her sister visited her. There were then nausea and dull pain in the knees, which was persistent and caused her to groan in her sleep. Examination was negative, except that there was great hyperesthesia of the patellar region above and below, and there was also



hyperesthesia of one arm. Also the right abdominal reflex was absent, and the adductor reflex on the same side was exaggerated.

I decided that the case was psychogenic, and that afternoon attempted psychoanalysis to seek the origin of the psychalgia. I found two successive incidents, one being the visit of this sister on the second occasion, the other being the fact that when first attacked her brother had a severe hysterical spell. He was a consumptive, and she was in fear of the same disease. Another fact that might have had significance was that she had been two weeks in a newspaper office during its change of ownership, and was alone with the man in charge much of the time.

As she could stay in Washington only a short time, I concluded that it would be better to remove the effects of whatever had been the source of the hysterical symptoms by psychomotor discipline than to try to pursue psychoanalysis, which might be unfruitful in the short time at her disposal.

Treatment. As the least approach towards the patient's knee would set up an exhibition of terror, during which adductors, hamstrings and extensors went into spasm, I began a course of gradual habituation, first to the approach of a person's hand towards the knee. Gradually I began manipulation of the patellar region, followed by pressure thereon. I enlisted the assistance of a sister who attended her in hospital and helped her to accomplish these exercises several times each day. In this way, she taught herself in a few days to control the muscles around the knee joints so as to prevent them contracting when her knee was touched.

The pain ceased when the spasm did, as it was in part maintained by the latter. Then her alarm vanished, as there was no reason for it; and she was satisfied that her pain lay in her own power to control. The dangers of prepossession by a fear, in conjunction with the mental vacuity engendered by lack of occupation were explained to show the genesis of false fixed ideas regarding disease, and she was told how to avoid them.

She returned to Virginia in a week quite well, and has remained so for now eight months.

Case of Barking, Roaring and Bowing tic removed in one day. This patient was referred to me by Dr. Thomas Charles Martin. He had been treated for rectal ulcer for some months; lived in North Carolina, having recently moved there, but not liking the country, wanted to come back to Washington. It is possible that this had something to do with the development of his condition. I was asked to see him, because when he sat down he would utter a series of barks, while at the same time the trunk would go into

spasmodic flexion. On stripping him, there were seen strong abdominal muscles and regular bowing of the whole body with the barking, grunting noise.

Psychoanalysis showed that these attacks had begun suddenly in North Carolina at 10 P. M. three months before. The significant fact was that he had eaten some sandwiches which had been sent to him by his parents from Washington, and that he had been thinking despondently before he went to sleep about how nice it would be were he in that city. He was also thinking considerably about his intestines, having been under treatment, by lavage. However, the exact psychological mechanism was not discovered beyond the few suggestions contained in these discoveries.

Treatment. I thought it better to remove the effects rather than to necessarily discover the details of the genesis of his tic. So I instituted a course of psychomotor discipline. The tic, which at first had come only when he lay down at night, had later also occurred whenever he sat down, and thus made life a burden. So we began by exercising in the sitting position. I placed him in a large chair reclining, showed him how to deliberately contract the recti abdominis, and made him perform a series of respiratory movements, as well as a series of recti movements. After a few moments, he became capable of contracting either the recti or the diaphragm. This being enough for one sitting he was asked to come back the following day. However, he went home and tried the exercises while recumbent at night. The result was that he came back the next morning and said: "Doctor, I am cured. I did not have a spell last night." Two days later, however, he relapsed. But after another discipline he remains well.

Thus it is very simple to remove the effects in this rational way, and so much better than the rough suggestion usually attempted. He had been treated in North Carolina by electricity, which he was assured would remove his spasms. When this failed, he was then treated by direct suggestion. When this failed, he was then treated by "the most marvelous remedy known," a drug obtained from some remote country, which was guaranteed to cure, which it did not do, so that the most powerful suggestions failed in a case which was in origin suggested, and conformed to Babinski's definition of hysteria; "susceptible of production by suggestion," for a motor habit had been formed; and the removal of all habits requires reeducation of the patient's volition. Indeed, it is only by its action on the will that suggestion does succeed when it does.

Skill in the technic of psychotherapy is not hard to achieve after psychopathological data have been acquired. But to attempt psy-

chotherapy without knowing to what it is being applied is as fatuous as the grossest empiricism in any other part of medical or surgical art. "Just as the surgeon requires, first, a minute knowledge of anatomy and pathology; secondly, the good sense to apply this knowledge clinically; thirdly, acquaintance with a practice of technical advances in his art; so the psychotherapist requires, first, a minute knowledge of psychology and psychopathology (I exclude here all metaphysical notions, which unfortunately are rife in much which has been written on psychological medicine); secondly, the acumen to use this knowledge clinically in diagnosis; and thirdly, an acquaintance with and the practice of technical procedures as they improve."

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### A YEAR'S EXPERIENCE WITH SALVARSAN\*

BY MAURICE S. DAVIS, M.D., Lexington, Ky.

Salvarsan, or "606" as it is commonly known, has been in use in the United States a little over a year—some sixteen months. This length of time is hardly sufficient to warrant a statement in regard to its positive curative effects in a lurking disease such as syphilis. However, in this time the results obtained are of such a nature as to permit us to draw some conclusions as to its merits, and as to what we may expect in the future. The mass of literature on the subject is most startling, and from it we are made aware of certain facts, namely, startlingly favorable results from the use of this chemical have been obtained.

A great deal of skepticism has existed concerning salvarsan, as is always the case with every new discovery, remedy or treatment. Especially has this antagonism been shown among French and English writers, but as time passes and the results are shown, the skeptics become fewer and converts more numerous. In this connection Wolbarst says, "There can be no denying the wonderful effects of salvarsan in syphilitic conditions. Undoubtedly experience is teaching us that a simple injection of salvarsan has the potency of a thorough course of mercury and iodide."<sup>1</sup>

To treat syphilis properly and scientifically we should take advantage of modern day advances. A serodiagnostic test should be made in every case of syphilis or suspected syphilis, before treatment and after; for only in this way can we judge of results; while unfortunately, like the great majority of laboratory tests, it is not perfect, still it is the best we have and, therefore, it should be used. It has been used in most of the cases with which the writer has had

\*Read before the Fayette County Medical Society, February 12, 1912.

the last year's experience. Noguchi, of the Rockefeller Institute, has recently announced a skin test for syphilis, similar to that now in use for tuberculosis, which he terms the Luetin test. His reports so far are only preliminary.<sup>2</sup>

Especially valuable is the blood test when it comes to a question of marriage among syphilitics, where to all outward appearance they are free of the disease, and have been for the proper length of time. When the blood test is positive, you are all the more convinced that you are not doing right in permitting them to marry.

Heidingsfeld reports in those cases which he could follow, after the use of salvarsan that 79 per cent. became negative after a positive blood reaction, 6 per cent. improved, 12 per cent. showed no change, and 3 per cent. retrogressed.<sup>3</sup>

Salvarsan was first administered as an injection into the deep muscles of the buttocks, an alkaline solution being used, 10 c.c. to each side. Fourteen cases were treated in this way.

Eight of these were secondary cases such as one meets in every day practice with the usual mucous lesions. These lesions cleared up in most of the cases in from eight to ten days.

Case No. 1. A. P., a negro man, who was shown to this society at its meeting in January, 1911, and case reported by Dr. Stucky in the *Kentucky State Medical Journal*, March, 1911. This was a case of tertiary syphilis, with enlarged cervical glands, marked ozena, septum destroyed, but no swelling on either side of the nose. All of these symptoms cleared up rapidly after use of salvarsan. This case was seen about nine months after having received the injection and was still free of the luetic condition as previously exhibited.

Case 2. L. B., which was shown at the same time as case one. Infection about eight months previous; had marked tertiary skin lesions over various portions of the body, including syphilitic plaques. This man had been treated strenuously with deep injections of mercury, but responded only slowly. Salvarsan was injected and he showed a decided improvement within ten days' time; about four months later he developed hemiplegia, and was seen in consultation with Dr. Clark, who concurred in the opinion that salvarsan had nothing to do with this condition.

Case 5. This was a female, referred for injection, married, with a gumma of the iris, associated iritis. The gumma disappeared within twenty-four hours after injection, while the iritis cleared up in about two weeks' time.

Case L. O. Infant about eight months of age was given a subcutaneous injection over the scapular region. The child had no

lesion showing at the time of injection, nor has it shown any, as the mother was given an intravenous injection at the same time.

The remaining five cases had no special manifestations worth mention; all responded to treatment and showed rapid improvement.

Seventy-eight cases were treated with salvarsan, given intravenously; 33 were primary, 19 secondary, 16 tertiary cases, 1 congenital syphilis.

The primary and early secondary cases were injected immediately after a diagnosis was made, either from the clinical evidence or laboratory findings. They presented nothing of special interest other than that the eruptions present faded rapidly as did the primary ulcer, if still showing. One case, a young lady with an extra-genital chancre on the upper lip, which was swollen and painful, glands of the neck in a like condition; was seen two weeks after the appearance of the ulcer. Serodiagnostic test negative, no stain was made for spirochaeta, as bichloride had been used as an application to the ulcer. The young man whom this girl had kissed was examined, and unmistakable evidence of syphilis being found she was given an injection of salvarsan. The next day she said the lip and glands felt better, while the swelling was perceptibly decreased. The case was seen to-day, just two weeks since the use of the salvarsan, and there remains only a slight crust with elevation at the lip to show where the chancre had been.

The later secondary cases present more of interest and show better what results can be derived from the use of salvarsan. Herewith are reported four cases in which the drug was used, together with results obtained.

R., white, male, was seen by his home physician, who told him that the lesion then showing on his penis was of an innocent nature. He did not improve under this man's care and consulted an advertising quack, who seemingly knew no more of his troubles than did the physician. When examined the man was found to be well advanced in the secondary stage of syphilis. Infection had taken place some time in the winter of 1910. The head of the penis and the foreskin were found ulcerated and swollen; the buccal cavity covered with mucous patches; enlarged and ulcerated tonsils; vocal cords thickened; deglutition greatly interfered with; inside of the nose was very much ulcerated; cervical and inguinal glands enlarged. Twenty-four hours after receiving an injection of salvarsan this man showed change for the better; improvement was decided. In ten days' time to all appearances he was entirely healed. He was seen on December 3d, three months after the time of receiving the injection, and was apparently cured.



T. K. was referred to me; had a small innocent looking sore back of the corona, which disappeared in a few days' time as did also the patient. He returned in about five weeks complaining of severe muscular pains all through the body, especially in the lumbar region. The thermometer showing a slight rise in temperature, he was put to bed and closely watched. Aspirin, etc., did nothing towards relieving his pains. After several days, a slight eruption was observed on his body; also some slight glandular enlargement was found. A diagnosis of syphilis was made and salvarsan administered; relief being prompt, the patient left the hospital in three or four days free from all pain and able to resume his usual duties. I might mention as a matter of interest that this man had on his chest a *tinea versicolor* covering a space about seven inches one way and three and a half the other, which also disappeared after the injection. This spot, so he said, had been present for several years. The man was seen about the last of January, almost five months after the injection, and had had no trouble since. He refused further treatment.

T. C., white, male, contracted syphilis four or five years ago; was treated by local physicians; also had been to Hot Springs and received treatment there. Examination showed a large tertiary ulcer on the outer side of the left thigh. He was given an injection of salvarsan in July, 1911. Ulceration cleared in eight days' time. He has had no trouble since, nor has he had other treatment.

M. C., original infection eighteen years ago. Gives history of about one year's treatment with disappearance of all symptoms. Made a trip to Hot Springs about eighteen months ago and was under the care of Dr. Greenway for six or eight weeks. When seen about three weeks since, presented the following symptoms with a clear history of syphilis: No active clinical symptoms other than patches on the tongue; had been feeling badly, losing weight, and complained of loss of appetite; pupils responded to light sluggishly; accommodation good; complained of girdle pain; parasthesia of soles; no Romberg symptoms, walked steadily with eyes closed, knee jerk slightly increased, no ankle clonus; no Babinski; complained of slight pains in leg. The man was highly nervous. There is quite a little doubt as to whether the pains in legs and girdle sensation and other parasthesia, were significant of tabes.

In the absence of other symptoms, however, salvarsan was administered and the patient was seen for the last time about a week following the administration and reported absence of the girdle pain. Seemed not to be as nervous, and said he was feeling better than he had in past five years.

These are about the average cases treated. Some were not so bad; others were worse. The results cited are typical of the results secured. In every case treated there was improvement more or less marked and rapid; they showed general improvement as well, usually increasing in weight. Certainly mercury has also shown that it gives good results, but not as rapidly and as certainly, and this is the point which is to be sought for in the treatment of syphilis. Lydston remarks, "In regard to the results obtained by salvarsan, I am free to say that while I have occasionally seen quite as remarkable benefit from intravenous injections of mercury, salvarsan is on the average much more trustworthy, far more speedy and definite in its action."<sup>4</sup> Heidingsfeld and others give salvarsan with no other treatment, excepting in indicated cases. Frances Hagner gives an intravenous injection and within thirty days a deep intramuscular; this is followed with treatment as indicated. Some more conservative, however, are following the salvarsan treatment with mercury, as has been done in the cases here reported, where they would submit to its use. Mercury in some form has been advised in all cases. Pollitzer says, "that it (salvarsan) is the most effective drug we possess for the symptomatic cure of the active lesions of the disease."<sup>5</sup> This expresses the opinion of most of the later day writers on this subject. "Of one thing we may feel certain, namely, salvarsan has come to stay and will certainly play the principal rôle in the conquest of syphilis," is the statement of Wolbarst.<sup>6</sup> All cases which we have treated have shown improvement. Especially rapid were those which had mucous lesions showing; next in rapidity to heal, were those with skin manifestations; the glands being the slowest to respond. Primary ulcers disappeared in from fourteen to twenty-four days, regardless of their duration. Salvarsan has demonstrated to the satisfaction of most users that it is rapid, that it can do what mercury and iodide does, but in a shorter time.

The intravenous is the method of choice for the routine administration of salvarsan, which method has been used by the writer since February 3, 1911, the solution being alkaline and given with Heidingsfeld apparatus<sup>7</sup> usually into the median basilic vein of the left arm, inserting the needle through the skin into the lumen of the vein, where the same is superficial enough to permit of this, if not, the vein being exposed; 0.6 gm. is given to the male and 0.5 gm. to the female; this is given in a 300 c.c. solution. In the beginning a normal saline solution was used, but finding that it became cloudy, it was changed to sterile distilled water, which is still used. This, according to Corbus,<sup>8</sup> makes an isotonic solution. The administrations were made in the hospital under every aseptic precaution, the

patients being placed in a recumbent position and kept so for several hours following the use of the drug. In some of the earlier treatments, a portion of the solution was spilt in the tissues during the administration. When this did occur it was followed by slight pain and swelling in the region of injection. However, this occurred only seldom, and did not amount to much. In a half hour to three hours following the introduction of the salvarsan solution, the patient in most cases experiences a chill, varying in severity, which is usually followed by nausea and vomiting (the chill and vomiting are said by some writers to occur where the water has not been freshly distilled and sterilized; this, however, has not been our experience). The vomiting is followed by a rise in temperature, of a more or less high degree, having gone as high as  $104\frac{1}{2}^{\circ}$  F. in one case. It dropped to normal in about eight hours. However, some cases continued to run a temperature for several days after the injection.

In three cases we had persistent nausea following in the course of treatment; in one case this lasted for about four days; patient was unable to retain anything in the stomach during this time. In the other two cases the stomach continued to rebel against food for a week or more. Since then there has been no trouble along this line. One case presented a herpes zoster; two had an arsenical eruption following use of the salvarsan.

In the deep injections, one case abscessed. In a large percentage of cases thus treated the buttocks became painful and swollen for several days following the injection. Some writers report as much as 15 per cent. of their cases to be followed by abscess. In two cases which were injected into the muscles of the arm near the shoulder, by a physician whom I am pleased to say does not live in Lexington, the arm abscessed at the sight of injection and the tissues necrosed. Quite a little of the salvarsan was found deposited in the degenerated tissue when it was removed. One case, a male who had a marked polyuria (no albumen or sugar present) was benefited for a while after injection. No kidney trouble has been observed to follow any of these cases, nor has there been discovered eye or ear symptoms following its administration. Keyes and others have discarded the use of iodipin as a vehicle for a deep injection of salvarsan, on account of its after effects on the auditory canal.

Along this line the following from Boehm is of interest: "It was formerly thought that involvement of the auditory and optic nerves, reported in European literature to follow intramuscular injection of salvarsan, might be due to an arsenical neuritis; in which case there might have been an idiosyncrasy on the part of the patient to

arsenical preparations. This has since been disproved. Neuritis of cranial nerves, following such treatment, is merely coincident and only a syphilitic inflammation of the nerve proper, with no connection whatsoever of the arsenic of the preparation.

Ehrlich has referred to such a condition as *neurorecidivus*. Notwithstanding this fact there is to-day fallacious tradition among the profession, especially in unenlightened quarters, that salvarsan has produced and will produce blindness. The preponderance of evidence accumulated disproves this statement."

Wechselmann's statistics of cases examined before the use of salvarsan show that the optic nerve was affected in 3 per cent. of his cases in the early stages. He reports a case of blindness after the use of salvarsan, in which case methyl alcohol was used as a solvent.

Contraindications to the use of the drug may be mentioned: alcoholism, organic nephritis, diabetes, ulcer of the stomach, organic heart diseases of any form, aneurysm, and other circulatory disturbances. However, there have been cases reported where some of these contraindications have been disregarded and the medicine administered without harmful results.

Salvarsan has been administered in other diseases than syphilis; in malaria, pellagra, sleeping sickness. In the latter some very gratifying results have been reported. Martin<sup>10</sup> reports favorably on his experiences with salvarsan in pellagra, in the other maladies, its use has not been encouraged.

Every case of syphilis should be given the advantage of the drug. All primary cases, especially, should be subjected to its use, if for no other reason than that the symptoms of apparent or infectious lesions respond so readily to its use, thereby lessening the danger of further dissemination of the disease.

No one can yet say positively how permanent or how lasting the results of salvarsan treatment will be. We do know, however, that it does relieve the patient of the symptoms of syphilis and that the blood reaction becomes negative frequently after its use; therefore, the writer believes that all patients infected should be given the advantage of this form of medication. He furthermore thinks that all patients should receive a second dose, and that this should be followed by mercury and iodides and the usual antisymphilitic treatment. Especially should this course be pursued until it is further demonstrated what salvarsan will do other than to clear the symptoms and give a negative serodiagnostic reaction, but even as it stands the medicine should be used as a routine in the hands of one who has had experience in its use.

The writer wishes to express his thanks to Dr. S. B. Marks for his kindness and interest, and also his appreciation to Dr. E. B. Bradley for his laboratory work in connection with the cases. Following will be found the report of Dr. Bradley's year's experience with the Noguchi serum reaction.

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## SUMMARY OF ONE HUNDRED AND SIXTY-SEVEN SERUMREACTIONS BY THE NOGUCHI METHOD

By E. B. BRADLEY, M.D., Lexington, Ky.

As a result of a year's work with the Noguchi test for syphilis, I find it to be as reliable as any laboratory test that we have for diagnosing disease. It is certainly as reliable as the Widal test for typhoid fever, and that is saying a good deal.

I have failed in one instance only to get a positive reaction where clinical evidences of the disease were present. I did not see this case, but his doctor informed me that there was no question that it was a case of secondary syphilis. I have been struck with the high percentage of negative reactions in cases well treated with mercury, and with the difficulty with which a positive reaction is changed to a negative one with either mercury or salvarsan. One case that I have in mind is especially interesting; this patient had his primary over two years before consulting me, and he had had what I considered thorough treatment, that is, he had been treated for these two years with mercury mostly hypodermically, and had had some treatment with iodide. His blood showed an absolutely positive reaction and salvarsan was given intramuscularly; this was some time in February, 1911; his blood tested from time to time always showed a positive reaction and he was given hypodermics of gray oil for two or three months, these measures failing to change his blood reaction, he was given salvarsan again, this time intravenously; this did not affect his Noguchi reaction, and he was again put on hypo-



dermics of mercury. After about twenty-four hypodermics, his blood has begun to clear up and his reaction, while still positive, is much less so than it has been before. I could not see that the salvarsan had the slightest effect on his blood reaction, though it is very possible that it did so and was further helped by the mercury that he received. Other cases have cleared up after a single dose of salvarsan, though this is rather the exception than the rule.

#### RESULT OF NOGUCHI TESTS FOR SYPHILIS

	POSITIVE	NEGATIVE
Primary (early) .....	0	1
Primary (late) .....	2	0
Secondary (untreated or slight treatment).....	20	1
Known syphilis with more or less treatment.....	46	57
Tertiary (treated) .....	2	1
Paresis .....	4	0
Tabes .....	2	3
Congenital .....	1	0
For diagnosis .....	15	12
Totals .....	92	75

#### URINE IN ITS PATHOLOGICAL RELATION TO ACUTE FEBRILE DISEASE

BY S. R. KLEIN, M.D., Ph.D., M.A., Valhalla, N. Y.

One of the most important symptoms and supporters of diagnosis of febrile diseases is the urine. We, therefore, should pay more attention to its examination, and it is my opinion that no diagnosis should be made before kidney's excrement is examined thoroughly; not only chemically but microscopically, from each standpoint of histological, pathological and bacteriological views. I found it important and of great help to diagnosis in 900 cases of 1,000. In most febrile diseases the urine is of higher specific gravity, of deeper color, often like that of strong ale, and less in amount than in health; the alteration in color is partly due to excess of urobilin. The oliguria of the febrile state is to be accounted for to some extent by retention of water in the tissues; after the crisis of the fever diuresis often occurs.

When voided febrile urine may be clear and bright and may remain so for a while; if tested with nitric acid for albumin such urine will often at once develop a urate cloud, and in a few minutes a deposit of urea nitrate crystals, which form on the surface of the acid. In the later stages of the febrile state, spontaneous deposition of urates takes place and is regarded as a sign of the crisis of the fever, especially in pneumonia. I think the physician for this reason

should not neglect to examine the urine a few times (at least twice daily); if he does not do it himself, but sends the specimen to a scientific or commercial laboratory (colleagues very often really do not know the difference between the two kinds of laboratories) he should put in the bottle one drop of one per cent. formalin to prevent decomposition of the urine. We know that, especially in cases of pneumonia, decomposition of the urine occurs very often and very quickly. I have known decomposition to occur in one hour. Dr. Pick (*Arch. f. Klin. Medizin*, 1900) states that while the urine is strongly acid during the febrile period, it almost always becomes either amphoteric or very alkaline after the crisis. He attributes this to the setting free of the soda from the exudative products and from the tissues generally, where it has been retained. In severe febrile conditions, in which the tissues are rapidly metabolized, the normal proportion of potash and soda excreted in the urine may be inverted, the amount of potash being greater than that of the soda. Chloride retention also occurs, especially in pneumonia, in which there may be entire absence of chlorides during the acute stage. About twenty-four hours after the crisis they begin to reappear, but do not reach the average normal amount for a week or ten days. In scarlet fever there is no retention of chlorides. In cases of typhoid fever Professor Von Jaksch (*Zeitschrift fuer Klin. Medizin*, 1902) found that the urea nitrogen may be diminished, the loss to some extent being compensated by a considerable excess of bodies of the amidoacid type, which may represent from 30 to 35 per cent. of the total nitrogen. In most cases of pneumonia Dr. Cook (*Johns Hopk. Hosp. Bulletin*, 1902) states that there is more nitrogen excreted during resolution than the exudation products would account for. In rapid resolution the leucocytosis curve closely follows that of the nitrogen excreted, which would seem to point to a causal relation between leucocytosis and resolution. In all febrile conditions in which the pyrexia is high a faint trace of albumin may be present in the urine, and especially this symptom should not be overlooked. Very often (100 to 200 times) I have known colleagues to send the specimen to a laboratory where albumin was found, but they never examined the urine on the next day following. Albuminuria of such kind is never a competent sign of inflammation. It disappears often during the same day and *vice versa*, especially in typhoid fever. Only on the eighth or tenth day can albumin be detected, while the tubercle bacilli can be on the fifth. Some febrile conditions of an infectious nature may be accompanied by the presence of specially associated products in the urine, which, when recognized, may serve as aids to diag-

nosis. Giarre (*Lo spermiciale*, 1895) and Binet (*Revue Med. de la Suisse rom.*, 1894) found very little urobilin in diphtheria, but great excess in scarlet fever and most of all in pneumonia. Traces of acetone are present in the urine in many febrile conditions and in scarlet fever, follicular tonsillitis and quinsy, there may be much more than a trace, whilst in diphtheria it is often all but absent. Phenol and indoxyl compounds are present in excess. In many febrile conditions, especially in tuberculosis, infection of the intestinal tract, in typhoid, the amount varies, but there is usually an increase in phenol; Dr. Blumenthal states that excessive indicanuria in the febrile stage of enteritis indicates a severe attack. When intestinal hemorrhage occurs in enteritis or in other diseases, a large increase in urobilin and other aromatic compounds appears in urine. As we cannot judge it by these appearances, it is not enough, not satisfactory to thus examine the specimen. It may contain albumin, sugar, and it may show some casts, etc., etc. The careful physician will never be satisfied by superficial reports of laboratories.

I am sorry to state that we have no records of findings of phenol, indoxyl or phosph. sulph. acid, etc., etc., so nothing definite can be said now. It is favorable that in scientific work in mental and nervous diseases, findings in urine coupled with those diseases are of a very primitive nature and amount. We seem not to pay sufficient attention to daily examinations of the urine, for instance in cases of mania, dementia praecox, melancholia, epilepsy, etc., etc. Many observers have reported the occurrence of albumose in the urine, in febrile diseases, especially in enteritis, pneumonia and scarlet fever. It is to be remembered, however, that these diseases are distinguished by the presence of a large amount of urobilin in the urine, but I will discuss this at another time.

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### A CHISEL FOR TRACHELORRHAPHY

By DOUGLAS H. STEWART, M.D., New York City

In trachelorrhaphy, change from scissors to scalpel, or the reverse, may prove of advantage, but it does not alter the basic fact that neither instrument is perfectly adapted to the purpose for which it is being employed. In short, they are both out of their field, they are improper tools. Evolution seems to have spent its force in producing an immense variety of scissors, but has left the knife more or less alone. This seems to agree with a common opinion that as a surgeon acquires skill he uses the scissors more and the knife less; but trachelorrhaphy is the exception to this view.

Emmet found himself obliged to resort to the knife at times, yet he had four, or more, sorts of scissors for his brain-children. Garrigues found his difficulties lessened when "he replaced the scissors by the knife."

In preparing the cervical flaps the ordinary knife is at a disadvantage. It is pointed, its edge is easily dulled, its cut, in this instance, must be made at a very acute angle: whereas cutting instruments of this nature are devised to be used as nearly at right angles (cross-cut) as possible. It is too short, it furnishes a poor grip when extended, and it is much more expensive than a better adapted tool which I have developed from the chisel; an outline of which may be readily understood if one takes a piece of cardboard  $9\frac{1}{2}$  inches long,  $\frac{3}{4}$  inch wide, and cuts off the corner thus:



A = CUTTING EDGE. B = BLUNT POINT

It is a chisel with a misplaced edge.

It is made for me by the Betz Company, and the measurements, angles and all details are the results of long and careful trial on my part. The advantage of an edge at an angle should appeal to him who has endeavored to get his scalpel in the same position and has been prevented by the limitation of lateral hand-motion, caused by the vaginal walls and outlet.

The cost of thirty-five cents compares favorably with the dollar or more usually paid for a scalpel. If the point is at all sharp it should be blunted on some convenient stone, otherwise it might wound the vagina during some sawing motion. Finally, it might be well to mention the fact that one expert in repairs and cutting tools, I allude to a first class carpenter, has all sorts of chisels in fairly constant use, but for both scissors and knife he has scant employment.

Summary. In trachelorrhaphy, scissors and scalpels are make-shifts. A chisel is better. The modified chisel is long, steady, easily sharpened and cheap. Owing to the angle of its edge it embodies some good points of both knife and chisel.

## CONCERNING VIVISECTION

BY THE EDITOR

In this country, and to a greater extent by far in Great Britain, the question of vivisection is a vexed one. In England there has been waged for many years a bitter campaign against animal experimentation. The report of the Royal Commission which has been investigating the matter in Great Britain during a lengthened period has been recently issued. This report furnishes a sufficiently complete vindication of vivisection when conducted under adequate regulations and restrictions. The opponents of animal experimentation have always endeavored to confuse the issue as to its objects, by representing that experiments on animals are made solely in the interests of the medical profession, and that it is the humane duty of lovers of animals to protect them against the cruelties practised for the sake of curiosity. Some of the more enthusiastic anti-vivisectionists have gone even further, and have accused distinguished medical scientific men of wanton cruelty towards helpless dumb animals. Of course, to those who are only partially acquainted with the facts, such contentions are absurd and the offspring of malice.

The general public indeed should be brought to understand the great benefits which have been conferred on the human race by means of animal experimentation. For example, the extinction of rabies in England has been mainly due to the accurate knowledge regarding the origin and channels of diffusion gained by experiments on animals. Furthermore, the elucidation of the nature of hydrophobia has pointed the way to the discoveries made by Flexner and others with respect to such obscure diseases as cerebrospinal meningitis and poliomyelitis. Tropical countries are being rendered habitable and even healthy places of residence for white men, as witness the Canal Zone, by reason of researches into which animal experimentation has largely entered. But there is no need to defend these researches, for it is common knowledge among medical men, and what is required now is to educate the man in the street. The malignant and indiscriminating abuse which has been heaped upon the supporters of vivisection by the possibly well-meaning, but certainly at times injudicious opponents of experiments on animals is assuredly undeserved and the sooner the layman appreciates this fact the better will it be for all concerned. In Great Britain the cause of medical research is being unfairly handicapped, and in consequence that country is lagging behind other countries in progressive medical science, merely because the ordinary individual does not grasp the significance of the question. America will do well to take warning by the example of England and not try to throttle the advance of medicine by regulations inspired by ill-considered sentimentalism.



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## EDITORIALS

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### THE CHEMISTRY OF FERMENTATION AND PUTRE- FACTION

Putrefaction is a kind of fermentation of nitrogenous organic matter, more especially the proteids, and this change is brought about always by the action of bacteria or microorganisms. During this fermentation and the succeeding putrefaction certain chemical changes occur, and we have resulting synthetically prepared chemical substances identical with the vegetable alkaloids, some of which are extremely toxic. Brieger states that the same species of bacteria give different products, according to the soil in which they are cultivated. Neurine is the principal ptomain produced in the fermentation of the flesh of mammals, while in putrefying fish he found a base with the same composition and physiological action as muscarin. Cheese yielded neuridin, while glue yielded neuridin and a base very closely allied to muscarin. Gautier attempted to draw a distinction between the products of the action of bacteria on proteid matter and those due to biochemical and physiological activity in the living tissues. While defining ptomains as products of bacterial fermentation or putrefaction, the leucomains were thought to result from normal or abnormal decomposition of the living body. But so sharp

a distinction cannot be drawn, for we know that certain animal bases are products of both kinds of decomposition.

In the excretions of those suffering from suppurative wounds there are found quantities of phenol, which is known as a most active germicide. Here we have a product of putrefaction which is itself highly destructive to all forms of bacteria and microorganisms, and we are left to wonder if this product be not one of nature's agents, formed in a substance, and at a time when needed to assist in the correction of a pathological condition whose continuance without some such agency would result in general destruction. There are in the evacuations of those suffering from typhoid fever traces of a base which dilates the pupil, produces diarrhea, and is rapidly fatal to animal life. Certain of these bases resulting from putrefaction are violently poisonous.

Putrefactive decomposition begins by the transformation of the proteid substance itself, first, into albuminates, or bodies soluble in liquids of either acid or alkaline reaction, but precipitated on neutralization; secondly, into peptones, soluble at all temperatures and in all aqueous liquids, whether acid, alkaline or neutral. The second stage of putrefaction consists in the breaking up of these proteid bodies, forming compounds of comparatively simple and definite composition, of which the principals are tryosin, leucin and indole. The tryosin and indole belong to the aromatic series, the members of which usually possess more or less antiseptic properties, or which are antagonistic to the life of microorganisms. In the putrefactive process the initial material is proteid, and in the end, ammonia and carbon dioxide; so that the difference between putrefactive changes and the normal decomposition which occurs in the living animal (both processes being that of chemical synthesis) are chiefly in the intermediate stages, the formation of glucosides of fatty acids being especially characteristic of living processes, while the production of amidoderivatives of the lower fatty acids characterizes putrefactive decomposition. The properties of these and similar compounds depend upon the arrangement of their parts rather than upon a special nature. Variations in molecular arrangements do not come as the result of chance, atoms are not jumbled together. The laws of valency and selection are potent forces. So long as a compound re-

tains its identity its constituent atoms do not wander about, but if a change of relative position does occur from any influence we will have at once a change in chemical character of the compound.

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### HOPE AS A THERAPEUTIC ASSET

Take hope from man and he is poor, indeed. There are none without it to a greater or less degree. He that has every reasonable wish gratified still hopes for something more — greater wealth, better health, rest or freedom from care. None but who look forward to the accomplishment of the heart's desire. The person without something to hope for will of necessity be narrow, selfish, an egotist. It is hope that gives zest to life; that buoys us up, makes us rich in anticipations for the morrow. Without hope the future is a blank; with hope cheerful, bright, something for which to strive, to relieve the tension of effort. The child is full of hope for a happy future; the youth, for a brilliant career; the man, for a competency, or later for quiet and pleasure with health; the aged, for a happy future. We have our desires while in good health, hope accentuated in sickness. Here it is the agent par excellence that helps to recovery; nor is it alone the individual's hope for recovery, but hope must radiate from all who come into contact with him. Especially is this needed in the sick room. It will often accomplish more in bringing about recovery than mechanical agents.

It is a pity that hope among other like agents is not treated of in our works on Therapeutics or Practice. If carefully studied and applied, it would prove of inestimable value to the physician. But all men are not qualified to administer it in the manner and at the time when most needed, or when apt to be of the greatest benefit. It will be impossible for the pessimist to diffuse it, for he is either usually without it himself or has none to spare. To such a man organic diseases of the heart, for instance, or tabes, cancer, tuberculosis, are not amenable to treatment, and the patient is led to believe, by inference or otherwise, that there is no hope. While to the optimist "Hope springs Eternal," and the patient is inspired to make the fight for recovery, or at least improvement. Let our teachers point out the benefit of hope, and let it be dwelt upon in our text books. "The miserable have only hope," and hope has safely carried many a man over a crisis, both in health and disease.

## THE RECURRING USES OF MEDICINAL AGENTS

It is the history of medicine that remedies employed for a greater or less period fall into disuse only to be revived again at a later date. This has been going on, surely since the dawn of history, how much longer we do not know, but it is safe to say that man has always, like other animals, had remedies for the various complaints to which he was subjected. They were of a certainty crude, and from our present day knowledge more often inert than useful, dangerous than curative. Yet such as his knowledge and experience, personal or traditional prompted were applied. Arsenic was recommended by Hippocrates for cancer, by Lentilius for fevers, and while it is no longer used as a febrifuge, it is in cancerous growths and probably has been since the days of the father of medicine. Squills was used for its diuretic properties in the days of Pythagoras and is to some extent to-day, probably with few sporadic exceptions has been ever since that time. Opium was used by the ancient Egyptians as it has been found in their oldest tombs. It was forgotten or neglected for a time, or until Hippocrates revived its use as a sedative; again we hear of it in the Middle Ages. Opium and its alkaloids have been no less a curse than a boon to mankind, but are now subject to legislative control in many countries. Galen knew of male fern, hemlock, aconite, colocynth, indian hemp, nux vomica, aloes, mandrake called by the ancients mandragora and many other remedies used, which are prescribed to-day. Besides drugs proper, methods of treatment now designated physiological measures, such as hydrotherapy, mechanotherapy and organotherapy. Hypnotism was practiced by the priests as early as recorded history of Egypt, as were bloodletting, issues or setons, blistering. The actual cautery and enemas were used centuries ago. Most of these have fallen into disuse from time to time only to be revived, notably bloodletting. Surgery has had a similar experience as has dentistry.

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INJECTIONS OF DISTILLED WATER AND SALINE SOLUTIONS

For years subcutaneous and intercellular injections of saline solutions either alone or with such medicinal agents as may be given

hypodermically have been a routine procedure and whenever untoward effects have followed they have been charged to faulty technic or lack of proper antiseptic precautions in previously rendering the skin at the point of injection aseptic, as unclean instruments and hands of the operator. Doubtless many failures occurred for these same reasons and numberless physicians were chagrined and justly censured for carelessness. But all the time there was cause for these failures other than improperly distilled water, impure sodium chloride, foul syringe or faulty technic. Numerous investigators have been working to discover what really was the fault, and now we learn through the *Interstate Medical Journal*, March, 1912, that Hart and Penfold in England have come to the conclusion that the harmful effects of saline solutions are due to the water used and that even distilled water unless used immediately or very shortly after it is made is harmful. The longer it stands the greater the danger in its use. Centrifugalization, filtration or boiling do not remove the elements of danger; the only safe method being distillation in a Jena Flask just before use. It is well known that stock saline solutions, however carefully prepared, do develop a fungus growth upon standing. Water will extract protein matter from such material, and soluble products of protein metabolism are certainly toxic when injected into the animal body. Whether these experiments are regarded as theories or facts, one must accept the statements made that water should never be injected into the human body unless it has been freshly distilled in glass.

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#### A COLD WINTER

We are informed by the Weather Bureau that the winter of 1911 and 1912 was the coldest in forty-three years. Unquestionably there was much suffering in sections throughout the country from Maine to Texas and from the Missouri River to the Pacific Coast. To some, the warmly clad and housed, the well fed and healthy, the keen, frosty air was a delight; but to those less fortunate the past winter will be long remembered, as one associated with calamities, suffering and great hardships. Sailors, railroad engineers and firemen, policemen, teamsters, farmers and all those compelled to be much out of doors, and worse than all, those in the cities unem-



ployed, without means to procure the necessities of a comfortable existence will recall the past winter, many of them with sorrow, for it was a terrible season for the poor. Zero weather is a delight if accompanied with clear skies to the well fed, warmly clothed and healthy. Skating has been good, out-door winter sports generally have been enjoyable. There has been less illness than would have accompanied a damp, foggy season with the atmosphere charged with toxic infection, the grip, colds, etc. The death rate from infectious diseases has been low as compared with other less healthy winters, and this is some compensation. A cold winter brings its share of pleasure and is beneficial rather than otherwise to the health of those in good circumstances, but it brings also sorrow and privations; causes large money losses in business, taxes the resources of the charities and kills many of the weak and unfortunate.

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### ANAPHYLAXIS

The prophylactic use of a serum—diphtheria or tetanus especially entails the risk of anaphylaxis, supersensitisation. If, for example, a patient has received a prophylactic dose of diphtheria antitoxin, and later contracts diphtheria in twelve to fourteen days, treatment with the antitoxin will likely be followed by anaphylactic symptoms.

Goodall reports 43.4 per cent. in a series of ninety cases reinjected with antitoxin for a relapse or second attack of diphtheria.

This untoward result is to be considered in the treatment of tetanus. Extremely small doses will bring on symptoms such as respiratory failure, paralysis, clonic spasms and occasionally death from the administration of like serum. Besredka suggests that these results may be avoided by heating the serum to 56° C. for an hour on four successive days. Its therapeutic potency is not thus much impaired, but its power to produce anaphylaxis almost destroyed. Narcosis with ether or alcohol at the time of second injection will also prevent these disturbances.

Hodgson reports that the administration of thyroid gland simultaneously with and for some time after injection of antitoxin, will reduce the incidence of serum sickness. He recommends 1¼ grain daily for six doses for children up to 5 years (less for infants); of

2½ grains for those from 5 to 10 years daily for six doses; 5 grains on alternate days for four doses for those from 10 to 15 years upwards. He bases his conclusions upon the study of 100 cases.

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### ULTRA CONSERVATISM

Galen (A. D. 130), one of the greatest anatomists of antiquity, made his authority felt for many centuries; but some of his teachings regarding human anatomy were incorrect, because his knowledge was largely derived from dissections of the lower animals. When Versalius, fourteen centuries later, inaugurated what has been designated the "revival of human anatomy in the sixteenth century," he was subjected to the most virulent attacks by adverse critics because he challenged the accuracy of some of Galen's teachings. Among these critics was his old master, Sylvius, who was finally worsted in the controversy, and forced to admit that some of the statements of Galen were not in accord with what was found in the human body. Sylvius covered his retreat by suggesting that the structure of the human body had changed since Galen's day, and as a melancholy solace for being forced into a position distasteful to him, suggested further that the changes had not been for the better.

Numerous examples in the history of scientific medicine might be cited to show how much progress has been retarded by slavish regard for authority.

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### TRYPANOSOMIASIS

Major W. M. Roberts, of our Army Medical Department, has been traveling on leave of absence in Europe, in Egypt and in other Northern African regions. A student of tropical diseases, taken up by him with a view to improving sanitation in behalf of our troops stationed in the Philippines and in Porto Rico, he has made a most valuable collection of flies and mosquitoes for the Army Medical Museum. Accompanying these are photographs illustrating the origin and spread of the sleeping sickness in Africa. Major Roberts has concluded that this disease is not conveyed exclusively by the tsetse fly, but is spread by other insects also; among these is the mosquito, which has already a sufficiently bad reputation as to yellow fever and malaria.

## DIGEST OF CURRENT MEDICAL LITERATURE

*The Arthritic Diathesis.*—Medical eras change not so much in their ideas as they do in nomenclature. It is certain there are and have ever been peculiar morbid states of the body, generally of a hereditary nature. Physicians formerly spoke of the tubercular, the syphilitic, the alcoholic, the gouty, the rheumatic diathesis; to-day we say that such sufferers are predisposed to these conditions, by reason of the tendencies and weaknesses transmitted by their parents. The ideas are the same; the terms differ only. Of course it is not precise to speak of tuberculosis or syphilis as hereditary, since these are infections contracted generally after birth. Nevertheless, individuals are very prone to these diseases; and they may in this sense have the scrofulous or the syphilitic diathesis. The term has also been well interpreted as morbid temperament, meaning thereby the individual's dynamic state, as opposed to his constitutional or structural state. Temperament is the expression of his physiological, his nutritive activity. It is his particular mode of nutrition. Leo D. Duckworth, in the first of a series of admirable papers on rheumatism in the *PRACTITIONER* for January, adheres to the old term "diathesis" and recognizes several such states. First there is the arthritic or the rheumatic diathesis; then there is the strumous or scrofulous; the bilious; and finally the nervous. Arthritics present several peculiarities. In early years they seem not at all to manifest abnormality; their general condition is good and seems healthful. Circulation may seem somewhat impaired, there being cold extremities, a tendency to chilblains, dilated capillaries in the face. Such subjects may have eczema or erythema. They may have pains in various joints and especially in the lower limbs, which are said to be growing pains. Sore throats are common, tonsillitis is recurrent, and no doubt the congested faucial membrane lodges the specific germs of rheumatism. There is apt in such patients to be more or less acute arthritis, with or without fever; by reason of the presence of a diplococcus there seems to be a special receptivity toward the rheumatic infection. Up to the thirty-fifth year there may be one or more attacks of acute rheumatism. Other kinds of joint inflammation occur in individuals thus temperamentated from childhood to advanced years, depending oftentimes on whether the infections are from without, or from within, as in gout (endogenous metabolic toxins). Patients of this habit of body who have chronic septicemia suffer more from joint affections than do others. Many rheumatic manifestations appear in various tissues. We find erythema or purpura, nodules, or meningitis cerebral and spinal; chorea, heart

lesions and the like. Cases of chorea (cerebral rheumatism) exhibit a complication of rheumatism and nervous habits. The lymphatic and glandular system appear to Duckworth, singularly immune from rheumatic invasion; and in any well-marked rheumatic subject, the presence of sensitive, irritable or swollen glands should suggest a strumous blend in the economy.

The paper by I. B. Yeo and Q. S. Pheer in this symposium is upon the general treatment of acute rheumatism: we are advised to try to cut off the course of the attack, thereby lessening the danger of grave cardiac sequella. We should relieve the joint pains and other distressing symptoms; meet any complications that arise, and especially be ready to treat very promptly hyperpyrexia; guard against relapse by prolonging treatment beyond the period of symptoms, and by special supervision during convalescence. (We should guard here especially against heart failure, which might come about very suddenly through sudden exertion in convalescence. The disintegrating action of the rheumatic toxins upon the heart musculature is very conducive to collapse and sudden death.) Rest in bed, cathartics, fluid diet, alkalies and salicylates are other means.

R. Stockman contributes to this symposium a valuable paper on "Drugs and Rheumatic Affections." Salicylic acid is undoubtedly the most powerful of all antirheumatics. All salicyl compounds have their effect by reason of their conversion into it in the body metabolism. Of these compounds salicin, acetylsalicylic acid, salol and methyl salicylate are of most clinical importance. Salicin is better, less nauseous than sodium salicylate, and is conveniently given dissolved in hot water; yielding but 43 per cent. of its weight in salicylic acid, one must prescribe at least double the weight of the latter; 20 to 30 grains of sodium salicylate every one or two hours until one ounce has been given, when smaller doses may be given according to the circumstances. Acetylsalicylic acid is very active and has a marked analgesic effect. It cannot be prescribed with alkalies which decompose it, wherefore it may, if given continuously, bring on nausea and vomiting. Methyl salicylate may also irritate the mucous membrane; but 10-20 minim doses up to 5i-5iiss a day, in emulsion, on sugar, or in milk, are very effective indeed; this drug applied externally has a prompt analgesic action upon rheumatic joints. Salol and quinin salicylate are antirheumatic only to the extent of the salicylic acid content, which is for each about 50 per cent.; their value in acute conditions is therefore small. Sodium benzoate is as specific as is the salicylate, but exerts a less powerful and decided influence. The benzoate is, however, practically nonpoisonous and has no untoward side effects. It can be given in 20-grain doses every

2 or 3 hours with satisfactory results in cases of uncomplicated rheumatic fever, but its usefulness is confined to its substitution for the more powerful salicylate when the latter is not tolerated.

L. J. Lewellyn makes in this symposium a valuable observation on diet in rheumatic affections. He considers obesity the direct complication of osteoarthritis. One will fail who neglects to treat the patient for abnormal fat deposits. The prevention or timely reduction of excessive corpulences gives a sense of well being, diminishes the articular pains, tends to exercise, such as walking, and is fundamental to the control or arrest of the developing morbid processes which obtain in rheumatic affections.

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*Epidemic Cerebrospinal Meningitis.*—Public Health Reports, January 29, 1912, had a review of the etiology, transmission and specific therapy of epidemic cerebrospinal meningitis, with reference to public measures for its control, contributed by Dr. W. H. Frost, Passed Assistant Surgeon, Public Health and Marine-Hospital Service. After passing in review the history of the disease and its specific etiology, the writer remarks that the final link in the evidence of the causative relation of the meningococcus to cerebrospinal meningitis, namely the reproduction of a clinically similar disease in lower animals by the inoculation of pure cultures, has not yet been satisfactorily accomplished. Acute meningitis can be produced in monkeys and occasionally in other animals by the subdural injection of pure cultures of the meningococcus, but this is of itself hardly convincing evidence, since quite similar effects may be produced by subdural injection of various other bacteria. The result of investigations undertaken with regard to the occurrence of the micrococcus, indicate these conclusions. 1. Apparently healthy persons in the immediate vicinity of cases of cerebrospinal meningitis very frequently harbor the meningococci in their nasopharynx. 2. Apparently healthy persons themselves not in contact with any cases of meningitis, but residing in communities where an epidemic prevails, are not infrequently found to be meningococcus carriers. 3. Apparently healthy persons in communities where there have been only scattered cases of meningitis or none at all for several months are less frequently found to be meningococcus carriers. 4. The meningococcus is very rarely found in the throats of persons quite free from cases of cerebrospinal meningitis.

Serum therapy for the disease is reviewed from the writings on the subject by Netler and Debré and from a recent treatise by Levy. Summarizing the observations upon the use of antimeningococcic serum in the treatment of cerebrospinal meningitis, it has been



agreed upon by those best qualified to judge. 1. That the serum when promptly and properly used effects a very substantial reduction in mortality, shortens the course of the disease, and reduces the proportion of disastrous sequela. 2. That it must be used freely, repeated daily for at least three days in most cases, and as much longer as may be found necessary from observation of clinical signs and examinations of cerebrospinal fluid. 3. That the best results can be obtained only by persons expert in the technic and principles of the treatment and conversant with the clinical aspects of the disease.

As for public measures of control, Frost is of the opinion that preventive measures are to a very large extent futile. He therefore recommends that State and municipal public health authorities should direct their energies to providing effective serum treatment and the following is an outline of the measure suggested. 1. To require prompt reports to the local authorities of all suspected cases of the disease. 2. To provide the best facilities for diagnosis, viz: (a) An expert diagnostician, employed by the health authorities to visit suspected cases in consultation with the reporting physician. (b) An expert bacteriologist with a laboratory established in the immediate locality to examine and report upon specimens of cerebrospinal fluid. 3. To provide the best possible facilities for treatment of all cases, and the requirement that all such pronounced suspicious by the diagnostician be sent at once to the hospital for diagnostic lumbar puncture and treatment. The necessary serum and medical and hospital attendance to be provided free. The argument is that preventive treatment being of no avail and that serum administered skilfully and at the proper time will reduce damage both physical and mental occurring as the result of cerebrospinal meningitis. As for urotropin, Frost is sceptical as to its efficacy in the disease and says that it may be used in moderate doses under the supervision of a physician.

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*The paratyphoid infections* are beginning to receive at the hand of the clinicians and bacteriologists the attention that their significance deserves. In 1900, Schottmüller isolated from the blood of patients whose clinical symptoms resembled those of enteric fever two bacilli, which he named B.-paratyphosus A and B, respectively. He argued that paratyphoid fever was a condition resembling typhoid fever from a clinical standpoint, but associated with the presence of one or other of these bacilli. In a general way, this view has been accepted by British writers, and paratyphoid fever is regarded by them as different from "food poisoning" caused by B.-supestifer or

B.-enteriditic (Gaertner), these organisms being regarded as allied to but distinct from B.-paratyphoid B. British writers recognize two diseases, paratyphoid fever and food poisoning, while Europeans class together as paratyphoid fever all cases of infection in which are found bacilli of the "hog cholera group."

Colonel R. H. Firth, in the *Journal of the R. A. M. S.*, August, 1911, expounds the view of the British Army medical men in India on the subject. He points out that there appears to be a tendency to apply the term "paratyphoid fever" in cases of infection by B.-paratyphosus B., and a tendency to overlook the infection by the closely allied B.-paratyphosus A. Firth is of the opinion that there is a recognizable clinical entity caused by the B.-paratyphosus A., this entity being a fever or pyrexia of the continued type. He holds that it is to this fever, often of comparatively short duration and marked by a low case mortality, that for the present the term paratyphoid only should be applied. Practically all the Indian cases are instances of infection by the A.-bacillus. Firth disputes the correctness of the nomenclature of B.-paratyphosus, or rather as to whether a given microorganism is paratyphosus B. or B.-suipestifer. He claims that the infections caused by these organisms are really not fever in the common understanding of the word, but explosive infections, the result of the condition known as food poisoning. Firth and the British Army medical men generally aver that the infection caused by B.-paratyphosus A. is the sole true paratyphoid fever.

Bainbridge and O'Brien, of the Lister Institute of Preventative Medicine, published in the *Journal of Hygiene*, March, 1911, the results of investigations undertaken by them to elucidate the above moot points. These seem to suggest that B.-paratyphosus B. will cause paratyphoid fever as well as the A.-bacillus, and are opposed to the findings of Firth and his Indian colleagues. The situation then is that Europeans include all the hog cholera group of bacilli as causative of paratyphoid fever; that British writers believe that the A and B bacilli are guilty, and the Indian Army medical men think that the B.-paratyphosus A. only causes paratyphoid infections. The whole question of paratyphoid fever is important, and the differentiation of the suspected causative germs is of great scientific and practical interest.

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*Hemoptysis* is by no means always of phthisical origin. The examination of the chest may prove quite negative. The "bleeding" may in reality be saliva tinged by oozing from pale and receding gums of anemic, nervous or hysterical women. "Spurious"

hemoptysis may have its origin in decayed teeth, in distended capillaries at the base of the tongue; in nasal hemorrhage percolating to the throat; in granular pharyngitis, in abraded or ulcerated mucous membranes of the upper air passages and of the bronchi.

Hemoptysis may be due to pulmonary congestion from mitral lesions; to infarcts or emboli; to atheroma or vascular degeneration; possibly to aneurysm or late interstitial nephritis; to purpura, arthritic or malignant fevers. There may be bronchial or tracheal varices. There may be lobar pneumonia, emphysema or carcinoma; abscess, gangrene or bronchiectasis or streptothrix infections. The blood may be grumous coming from the stomach or even from the small intestine. There may be vicarious hemorrhages from the lungs.

Hemoptysis of unquestionably tuberculous origin may be presaged by traces of blood in the sputum, by tickling of the throat; by sharp pains in the chest over the sternum or at the right apex. In early cases, probably only the bronchial mucosa is hyperemic or abraded. Here the bleeding may be manifest in small masses of sputum, with the intimate admixture of traces of dark blood; there may be bright red frothy blood, a teaspoonful at a time; or the blood may leak slowly into a bronchus so that a blood cast of a bronchial tree may be emitted. In the later stages of tuberculosis occur the familiar phenomena, the bright red blood brought up with every cough, or filling the mouth, coming generally from perforated vessels, or from a ruptured aneurism in a branch of the pulmonary artery. There may be a fatal hemorrhage into a large cavity, without the appearance of any blood in the mouth.

W. B. Bartlett (*Boston Medical and Surgical Journal*, Dec. 21, 1911) considers the "Diagnostic Importance of Hemoptysis." He counsels well that bleeding from the upper air passages must be ruled out by careful inspection and history. Spitting of blood may occur in certain constitutional or blood diseases as part of the general tendency to bleed. It frequently occurs in broken compensation, in heart disease, mitral stenosis; it may be the only symptom of failing compensation. In such cases, tuberculosis is often suspected, but rarely found. Ninety per cent. of all hemoptyses are tubercular, in Bartlett's opinion; and this is probably a just estimate. In most of these 90 per cent. of cases, signs and symptoms are definable. Yet symptoms may not develop for months or years. Hemoptysis may occur in any ulcerating or eroding pulmonary disease. Where there is hemorrhage in abscess, gangrene, bronchiectasis or pulmonary cirrhosis, a careful analysis and physical examination, with sputum test, should rule out tuberculosis. Hemoptysis in pneumonia, bronchitis, asthma or after trauma should lead us to suspect

an underlying tubercular lesion. It is very doubtful if vicarious menstruation or hysteria can produce hemoptysis in normal lungs. Hemoptysis without warning in young and healthy adults, and passing off without obvious symptoms of tuberculosis, is nevertheless probably of tuberculous origin and should be so treated. Bronchopulmonary hemorrhage without definite symptoms or signs of cardiac or ulcerative pulmonary disease is due almost always to tuberculous infection. Unless there is evidence to the contrary, a given hemoptysis should be considered of tubercular origin.

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*Insanity* is defined by Dr. Carlos F. Macdonald as a disorder or a disturbance of the brain characterized by mental derangement, which manifests itself in a prolonged departure from the methods of thinking, feeling and acting which were usual to the individual when in a state of health. There is no standard of insanity. For example, for the president of a university to go down one of London's smart thoroughfares offering to black the boots of passersby would lay his mentality open to suspicion; whereas a bootblack, doing the same thing, would excite no comment whatever. "I cannot tell you whether you are insane without investigating your antecedents." Dr. Macdonald does not believe the strain of modern life predisposes to insanity; the effect of the strain is offset by the increased attention that is now paid to matters of hygiene, sanitation, diet, and so forth. Formerly, restraint was practiced in the treatment of the insane; we are now all in favor of music, entertainments, open doors, cheerful cottages and useful labor for such patients.

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*The Loco Weed.*—It is reported that the Mexican MARIHUANO or loco weed (*astragalus hornu*) is being feared and fought by the California Board of Pharmacy as an enemy no less dreadful than opium or cocaine. This pernicious growth is of the hemp family; and grows up to six feet or more. The leaves yield under high pressure a kind of oil containing the narcotic principle; those of the male plant are preferred because they appear to contain a higher percentage of the narcotic than the leaves of the female plant. Several years ago this plant became so great a public menace in Mexico that drastic laws were passed to govern the production, sale and use of the narcotic; whilst these laws have had some good effect, more than one-third of the people of Mexico are believed to be more or less addicted to the use of the drug. Much of it is brought into California by the Mexican laborers, who are greatly addicted to it. Mescal and pulque are the national drinks of Mexico; whilst these are intoxicating and fiery they are the only alcoholic drinks of that

people, are no better nor worse than whisky and are under ordinary control. But the loco narcotic destroys body, soul and mind. Its immediate effects are said to be a highly exhausted mental state, of much longer continuance than that produced by morphin, and followed by sudden collapse. The hasheesh of India (*Cannabis Indica*) is almost like the Mexican drug plant. The common American loco weed, so troublesome to stockmen in the Southwest, is another variety, containing its own share of the narcotic principle. Horses and cattle like to chew the fresh weed and soon become, by reason of its effects, temporarily insane or "locoed" (Spanish for crazy). Whatever horse sense a horse may possess, he loses it all unless kept from this drug in its natural state. This common variety has not yet found its use among human beings. It is against the Mexican marihuano (an Indian name) that the fight is being waged, in order to have the prepared drug placed in the list of proscribed narcotics, making its sale, use or possession a misdemeanor, punishable by heavy fine or imprisonment or both. It is purposed to copy the Mexican antiloco laws almost word for word into the California Penal Code.

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*Coley's Fluid.*—Coley, of New York, devised a cure for inoperable malignant tumors, a fluid consisting of the organisms and toxins of the streptococcus of erysipelas and the *Bacillus prodigiosus*, the treatment being based upon the fact that malignant growths may decrease or entirely disappear after an attack of erysipelas. Originally the fluid was prepared by growing the streptococcus obtained from a fatal case of erysipelas, rendered more virulent by successfully passing through rabbits in bouillon for ten days. The *B. prodigiosus* next added and the two organisms allowed to grow for another week or ten days. The culture then heated for an hour to from 58° to 60° C. and thymol added as a preservative. Now, however, the two organisms are grown separately and mixed in definite quantities.

Treatment is begun by injecting into the buttock or pectoral muscle  $\frac{1}{4}$  minum. If this dose is tolerated the fluid is subsequently injected either into the buttock or near the tumor. When injected into the tumor, the dose should be one-fourth that injected elsewhere. Daily applications are then made, increasing by one-fourth of a minum until a reaction with temperature of 102° to 104° F. is obtained. The dose is then not to be increased until it fails to give a reaction, when it is again increased by one-fourth minum. The treatment may be continued for several months, but injections are not to be given until the temperature is normal.



This treatment is especially recommended for sarcoma of the spindle-celled variety. Carcinoma is not frequently benefited. Coley reports fifty-two cases of inoperable sarcoma cured.

Larrabee, Boston, states that five cases had been previously reported, and he had now to report thirteen additional ones: nine of his own, three of Boldoff's, and one of Coley's. Under this treatment the general condition of the patients, some of whom had been treated with the X-ray without benefit, usually improved markedly, and in many instances there was a very marked diminution in the number of leucocytes. In other cases the leucocytes did not diminish though the general condition improved. It was noticeable that, while the myelogenous cases were often benefited, the lymphatic cases showed no improvement. The mixed toxin treatment was to be regarded as merely palliative, not curative; but in many instances it added greatly to the patient's comfort, and no doubt prolonged life. It should not be forgotten, however, that it was a dangerous treatment, and ought, therefore, to be employed with the greatest caution.

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*Pleurisy and Tuberculosis.*—Every case of "cured" pleurisy should be closely watched for many months after the patient has been actually ill with the disease. It is probably correct to say that considerably more than half such cases develop tuberculosis years after. Indeed Köster, Landouzy and others consider pleurisy with effusion a symptom of existing, though latent tuberculosis. Köster states (*Zeitschr. für klinische Medizin*) that in persons over fifteen years of age tuberculosis develops in at least one half the cases after the occurrence of idiopathic pleurisy with effusion. Tuberculosis developing after wet pleurisy in older persons runs an acute course and has a bad prognosis. After idiopathic dry pleurisy (which is rare in children) about 40 per cent. of the cases develop manifest tuberculosis. In most cases tuberculosis becomes evident in five years after dry pleurisy or pleurisy with effusion.

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*The parasite of kala-azar*, or black fever, is reported to have been discovered in Indian and European bedbugs by Captain W. S. Patton of the Indian Medical Service. This disease is very deadly in Southern Europe, the Sudan and tropical Asia, and many efforts have been made during the last five years to find the mode of its transmission, a search in which Captain Patton has now succeeded. Kala-azar used to be called "dumdum" fever, and it is still known in some parts of India by that name. It was considered a peculiarly deadly form of chronic malaria, causing irregular fever, enlarged

spleen and liver, great wasting and death in 99 cases out of 100. It was and is endemic in China, India, the Sudan and probably other tropical regions; cases have indeed been known in some of the Greek islands and even in Sicily. In Assam some years ago, it appeared as an epidemic, and spread slowly up the Brahmaputra Valley, killing off practically the whole population in village after village.

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*The Average Length of Human Life.*—Finkelburg estimates that the average length of human life in the sixteenth century was only between eighteen and twenty years, while at the close of the eighteenth century it was a trifle over thirty years. Since 1880 the average has lengthened in civilized countries by some six years. No two factors have contributed so much to these results as the improvement of the air we breathe and the water we drink. Since the introduction of sewers and filtered water, the general mortality in many cities during the past fifty years has been reduced fully one-half, the good effects being especially shown by the decrease in the number of deaths from typhoid fever, diarrheal diseases and tuberculosis.

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*Acute Poliomyelitis.*—In a review of the recent literature on acute poliomyelitis, A. Friedlander (*Interstate Medical Journal*, December) calls attention to the rapid increase of the disease in this country in the last two or three years. This fact, among others, has stimulated investigation, and recently several important facts have been established which promise much toward the conquest of the disease. Workers in the Rockefeller Institute have succeeded in producing the disease in monkeys by the intracerebral injection of an emulsion made from the bodies of common house-flies, which had been fed on portions of spinal cord obtained from a poliomyelitic monkey. It would seem that insects play a prominent part in the transmission of the disease. Kraus has produced active immunization of monkeys by repeated inoculation of small doses of virus over long periods of time, moreover definite antibodies have been demonstrated in the blood of animals so treated. Efforts to produce a serum of therapeutic value have, however, not been successful as yet. The subject of abortive attacks of the disease has recently attracted attention. According to Frost and other observers, such cases are probably very frequent, but on account of the mild type are unrecognized. These cases are often ambulant, and doubtless play a great rôle in the dissemination of the disease.

## THERAPEUTIC PROGRESS

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**Nucleogen:** This remedy is composed of a nucleinic acid preparation of iron with the addition of 3 per cent. of arsenic, a happy combination, for whereas arsenic of itself would be valueless, as demonstrated by the researches of Zwetkoff (*Zeitschr. f. exp. Path. u. Ther.*, Vol. 1, No. 2), in combination with iron it induces greater functional activity of the blood-forming organs. Dr. Rudolph Topf, of the St. Joseph's Hospital at Berlin-Weissensee made a systematic trial of the action of nucleogen in 86 cases (*Allg. Med. Ztg.*, No. 43, 1911), all of nervous and mental origin. Even those persons with evident symptoms of digestive derangement experienced no ill effects from the remedy, but in some instances there was a considerable immediate increase in the percentage of hemoglobin, the highest rise being 18, the lowest 8 per cent. In cases of mental disturbance and those liable to single recurrent attacks, Dr. Topf considers it a valuable remedy. Although in some instances no direct gain in strength and weight may have been perceived after administration of nucleogen, the desire for food, which had been entirely lacking, was unmistakably restored, and no injurious accompanying or after effects were observed in any instance. The initial and secondary stages of debility incident to nervous or mental derangement may be greatly benefited by the administration of this remedy.

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**Hormonal:** Dr. Joseph Kanert, Department for Internal Medicine, Municipal hospital, Dueren, Germany, in the *Muench. Med. Wochen.*, April 25, 1911, reports nine cases of severe chronic constipation of varied etiology and seven cases of grave postoperative paralytic ileus with diffuse suppurative peritonitis, treated with hormonal. Of the first series, five responded with positive results unmistakably due to the intramuscular injections of the remedy; two of these with permanent results, while three, in which the constipation was due to organic lesions, reacted with remarkable promptness, but without permanent effect. Of the second series—surgical—six recovered under intravenous hormonal therapy, which, in view of the many unsuccessful attempts to combat intestinal paresis by medicinal and mechanical means, must be regarded as a remarkable achievement. Byeffects were transient, consisting of slight rise in temperature and local pains.

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**Atophan:** After two years' personal experience in the use of this remedy, in addition to the previous reports of his assistants, Professor K. Georgiewsky, of Charkov (*Deutsche Med. Wochenschr.*, 1911, No. 37, p. 1039), gives it as his opinion that atophan has a beneficial effect in the majority of cases of acute, chronic and gouty arthritis, the subjective and objective symptoms being greatly ameliorated. Although the improvement is not permanent, occasional doses relieves the symptoms.

In doses of 0.5 gm. (7½ grains) three or four times a day, atophan produces no bad effects, even if continued from 5 to 10 days. It greatly augments the proportion of uric acid in the urine and in many cases also increases diuresis.

**Normal Serum:** Touneczek devised a serum to be used subcutaneously with great benefit in arteriosclerosis as follows:

Sodium chloride.....	10	grams
Sodium sulphate.....	1	"
Calcium phosphate.....	0.75	"
Magnesium phosphate.....	0.75	"
Sodium carbonate.....	0.40	"
Sodium phosphate.....	0.30	"

One gram of this is dissolved in 15 c.cm. of sterile distilled water. Treatment is begun by hypodermic injections in the region of the buttocks of 2 c.c. of the solution every other day, being increased in amount by 1 c.c. each injection until the dose of 8 c.c. is reached. The mixture has also been given per rectum or by the mouth.

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**Vertigo** usually originates in irritation of the brain and cord; those subject to attacks are sensitive to drugs, which, in excessive doses, produce this state. We should therefore give such patients only small doses (if any) of: arsenic, columbo, gold, guaiac, iron, quinin, salicylates, strychnia, turpentine, acetanilid, aconite, belladonna, chloral, cocain, ergot, ether, exalgin, gelsemium, nitroglycerine, musk, opiates, phenacetin, physostigma, valerian, veratrum, aloes, ammonium chloride, copaiba, ipecac, joborandi, male fern, potassium chlorate, santonin or tartar emetic.

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**Leprosy:** Carasquilla prepared a serum by injecting asses with blood derived from advanced cases. Herman immunized horses instead with the secretion or fluid obtained from leprous nodules emulsified in saline solution. Dyer of New Orleans claims to have been successful with antivenen in the treatment of leprosy, but reports from other sources are wanting.

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**Exophthalmic Goiter:** On the theory that goiter is produced by an over production of a toxin causing intoxication and exophthalmic goiter, a serum obtained from dogs from whom the thyroids have been removed has been used and favorably reported on by Ballet and Euriquez.

Stradiotti employed a serum prepared by injecting sheep with glycerine extracts of human thyroids treated with chloroform.

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**Cancroin:** Adamkiewicz prepared a mixture, which he termed cancroin and stated that he and others had found it serviceable in the treatment of carcinoma. Originally it was prepared by extracting carcinomatous tumors. The active principle is stated to be identical with neurin. An artificial substitute has been prepared as follows:

Neurin (25 per cent. solution).....	10	parts
Citric Acid to saturation.....	1.82	"
Phenol to saturation.....	1.25	"
Distilled water.....	27	"

This solution is diluted with an equal quantity of water and one gram injected.

**Thiersh's Fluid** is made up of 16 grains of salicylic acid and 96 grains of boric acid dissolved in a pint of sterile water. This is cleansing for mucous membranes, such as those of the mouth and eye; and it may be used whenever irrigation is employed for cleansing purposes.

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**Pancreatic Calculi** are usually multiple, white, round or rough, consisting chiefly of carbonate and phosphate of lime; they cause chronic interstitial pancreatitis, dilation of the duct, the formation of cysts, and possibly they predispose to carcinoma. The symptoms are indefinite; there is occasional epigastric pain, glycosuria, fatty stools and emaciation. The treatment is surgical and symptomatic.

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**Dry Pleurisy:** Triturate chloral, camphor and menthol in equal parts and apply to the chest surface.

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**For alcoholic stomach with flatulence:** R Tr. nucis vom., min. xv; tr. gentian et columbo aa ad. ʒi S. ʒi tid.

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**Chocolin:** Reported on by Professor C. A. Ewald, of Berlin, who had made a study of constipation and its treatment (*Berliner Klinik*, No. 105). He expresses the opinion that only that laxative which causes abundant soft, non-watery stools without inducing griping, tenesmus or nausea should be used. The causes of constipation are so various, and dieting alone not always sufficing to correct it, or even balneotherapeutic treatment, without the assistance of a laxative, that laxative remedies are as numerous as the sands on the seashore. Ewald has employed chocolin quite extensively of late, and found it beneficial in cases of constipation caused by atony, in splanchnoptosis, pregnancy, anemia and chlorosis and commends it within its prescribed limits, which do not cover those cases in which the functional activity of the intestines responds only to strong laxatives or purgatives. As a mild, non-irritating laxative, however, this combination of phenolphthalein with manna has this advantage, that a dose covers a wider range of the mucous membrane and not merely a circumscribed area, like a pill or tablet. Whether continued use would render it less efficacious has not been determined, though doubtless it would resemble other similar remedies in that respect. But, in common with other mild, vegetable aperients, Ewald considers that constipation, if not of too long standing, may be prevented from becoming chronic by an occasional dose of chocolin, continued for a few weeks.



## AT YOUR LEISURE

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### THE MONTH OF APRIL

"In April spring sets the house in order and perhaps camps out under its roof for a night or two. But it does not yet take full possession. That is postponed until May, for spring is none of your April fools. It knows that the solar furnaces are not in regular working order, and that the plausible blue canopy is no proof against wetting showers and that the chinks in the aerial weatherboarding may let in a very hurly-burly of blustering winds.

So spring devotes the month of April to getting ready. Incidentally it may do a few things as earnest of its maytime intent. It will clothe the fields in verdure, star them with dandelions, summon the hepatica, the buttercup and the trailing arbutus through the sod, touch with its own emerald wand the willow, and, just on the edge of May, obfuscate the woods in a mist of green. But the beauty of these things is in their promise. They tell of the good time coming.

For the most part the joy of the moment is expectation. There is a gauntness in nature; if you do not look farther than your own nose. The plowed fields show no shoots, albeit their earth smells are pleasant, the wood flowers peep up through dead leaves, and through naked branches the sun and rain reach them.

Next month spring may say, "Shall I not take mine ease in mine inn?" Just now, however, it is busy repairing the ravages of the severe winter and getting ahead. Everything is tentative, improvised and preparatory. You hear the sound of hammers, and know that the woodpecker is at work tapping the hollow beech tree; the sound of the saw, and that of the catbird getting the unmusical notes out of his system. The sun is at his hydraulics, "lowering his golden buckets down into the vapory amethyst." The fishing worm is performing his immemorial task of excavation and, as a side issue, unwillingly catering to the bodily needs of various arboreal architects.

A busy time, a hopeful time, a heartening time. The old tenants are trooping back and helping to repair the habitation while they wait. On every wind from the south come "wings and legs and bills that clatter." On the long rialto of the wood, the thespians of summer are exchanging experiences, making new engagements, expecting big things of the nearing season. Spring is no croaker of panic in April, and, as we have said, spring is no April fool."

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### LIFE AS IT IS

It was our pleasure recently to listen to a sermon by one of our noted city ministers, the text of which was "Life is Just One Damn Thing After Another." This epigram was found printed upon a card which had been sent through the mail, and coming to the notice of the speaker excited his wrath to the extent of a sermon from his pulpit. What was spoken was well worth listening to, and we were much edified throughout the discourse.

A final analysis of the sermon, however, leads us to the belief that the divine regarded life as truly one thing after another, yet notwithstanding the fact that in the life of very many there are things which classed as disappointments, hardships, undeserved misfortunes, lead one after another up to fatality, still the causes of these happenings, he thought, could be always traced to the individual's mistakes or bad habits: the doing of those things which when persisted in lead eventually sooner or later to these same trials, hardships, and misfortunes. That in other words, if the individual had led a righteous life, shunned temptations, the chances were largely in favor of his having escaped most of the misfortunes of which he complains. Without doubt the argument was a sane and temperate one as far as the speaker went or comprehended, but he took no account of those calamities which come into the life of so many of us, impossible to avoid. Take heredity, for instance; we think that all scientists believe in heredity; that certain traits, good and evil, can be and are transmitted from parent to child even to remote generations. Of the evils, is a tendency to, if not a direct transmission of disease, notably neurosis or a lapse in strength of character, resistance, weakened intellect, desire for excitement or show, kleptomania, intemperance, crime.

Then again we must take into account environment with its long train of perverted character, vicious habits and acquired disease, as well as the individual unfortunately mated with one of inferior health or discernment; to one lacking of mental poise, unfit to bear or rear children; the maintenance of health or social position. In such cases, all must suffer because of the shortcomings of one.

Is the individual then to be held wholly responsible for these hardships; are these not damned things; damned implying condemned? Should not one be justified in consigning them to the region of the condemned—lost? We can well imagine this expression as being uttered, if not in the same words, at least with the same meaning daily by hundreds of thousands throughout the world. Should the man who has fought against heredity, endeavored to raise himself above a vicious environment, and failed, be condemned because he has such thoughts, or has uttered such words?

All failures in life are not such as these—due to heredity or environment; there are many, perhaps the greater number not entitled to our sympathy or excuse; but who can discriminate between one class and the other. May not the very one we are most prone to declare not entitled to consideration be the victim of a bad ancestry, or of an evil environment because of poverty, intemperance, crime for which he is not wholly or in part responsible? The tout who risks his all upon a horse race, or a game of cards, loses, pawns his jewelry, honor for money with which to recoup; again loses and is quickly compelled to go to work at something for which he has no relish, lands in prison or hospital, may perhaps well declare that life is just one damn thing after another, as may the man who having grown old after years of faithful service; who has lost family, friends, one after another, for whom he has spent his entire earnings, finds himself without a position because he is not as active mentally or physically as in former years; is somewhat petulant, inclined to day

dreams of what might have been; is he not entitled to a protest of the same character? All men are not to blame because life to them is a failure. All men cannot stand alone, some need the sustaining help of friends, without which they totter and fall; good men many of them who make a gallant fight according to their capacity. To these a little timely advice will alter the whole aspect of their future and it is the good physician who can do the greatest good in these cases. Unlike Macbeth's physician, those of the present day can

"minister to a mind diseased;  
Pluck from the memory a rooted sorrow;  
Raze out the written troubles of the brain;  
And, with some sweet oblivious antidote,  
Cleanse the stuff'd bosom of that perilous stuff,  
Which weighs upon the heart?"

Opportunities are ever in evidence, and he who meets them with an open mind, a willing heart, will achieve the greater success and that fellowship which will prove a deserved blessing. That consciousness of having done his share, that sweet benediction which comes into his heart and lives with him every hour of every day of his life.

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### SHADOW LAND

We are so ignorant of the great mysteries of life, that not knowing, we are prone to believe, paradoxical as such a statement must seem. It is only the truth that sweeps away the cobwebs of superstition. If we could know the truth, there would be no room in our thoughts for legend, for bigotry or superstition, for then we would understand this fatuous hereditary nonsense for what in our ignorance we imagine real. Under the pall of the colossal shadow of ignorance, we are ever groping in darkness for light, while the shadows, inexplicable, mystify our senses, making us cowards all. The faint rays of light that reach our intellect are only sufficient to make the surrounding shadows more dense, sadder and real to our imaginations, thus awing us into a belief; the greater or darker the shadow, the greater our fear. Earthquakes, tornadoes, thunder, lightning are not the wrath of the gods, but the results of natural phenomena. When we know the truth, superstitions are but the vagaries of the child accentuated in the man; something to marvel at, but not as of ancient times to seek by all means,—even to human sacrifice to the gods—to avert. We learn but slowly, life is so short, while the shadows of ignorance and superstition surround us and befuddle our poor brains to-day perhaps if the truth were known quite as much as they did seven thousand or more years ago. There are those of us yet left who are afraid of the dark, of some unusual noise or sight as was primitive man afraid of his shadow. There are those of us who will worry all the day following a bad night when some uncanny dream startled us, so vivid in fact as to leave its impress upon us often to the extent of interfering with our daily habits and comforts. And do these dreams count for naught in our lives?

Who will say that he has not been awakened from a voyage in shadowland, often in terror, and lain awake for an hour, afraid to light the gas; afraid of the shadows which still encompass him? Our poor startled brains refuse to come back to normal until the light of day brushes before it the thick, ominous shadows of night. It has been said that shadowy dream land is near kin to insanity; that those of disordered minds are but permanent occupants of this same dream land that for reasons unknown to us we are forced to visit at times much to our distress. What a hell some of these lives must be. To them the world is turned about, upside down. Contagion is everywhere. Day is turned to night, right to wrong, and all the fiends in hell loosened, until the poor weary brain is righted, or the subject released by death and this madness is but one continued dream.

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### DOES IT PAY TO BE GOOD-NATURED

Elsewhere, a short time since, we asked "Does it pay to be good natured?" At that time, we expressed a doubt. Let us analyze the question.

To be good-natured implies qualities other than simply being pleasant. A good-natured man is usually considered one always in a peaceful frame of mind; courteous, easily approached and companionable; one usually satisfied with whatever occurs, easily persuaded, with little inclination to be assertive and without set opinions; one who agrees with his associates rather than argue; an optimist in fact and usually an "easy mark." Does such a man get what is due him? Is he not a victim both in and out of season? Does he not accept of indignities, fail to insist upon his rights, demand a *quid pro quo*, because he is good-natured? And is not such a man subject to impositions at home as well as abroad because of his good-nature?

In contrast to the good-natured man, take the ill-tempered one. Is there anything on earth he does not get? Life is made easy for him at home and elsewhere. His meals must be to his liking, appointments of his home and office according to instructions; his wishes are commands, and he exacts immediate compliance. He is never asked to work overtime, or to do another's work: on the contrary, he usually does less than his share, others preferring to clean up after him rather than a curt reply or perhaps a scene. He is better served, and, of course, universally feared and hated. In all of his doings, in his relations to others he is sure to have the best, most commanding position, largest wealth, while life is made easy for him. Show me an ill-tempered man and I will prove him a pessimist.

Let us consider which of these two types of men is the happier. With all of his arrogance, selfishness, bullying, does the ill-natured man get what most men crave: happiness? Can he avoid noticing the lack of friendly intercourse, want of courtesy, lack of geniality in those with whom he is associated? Is there not a constraint in the merry jesting, social circle whether at home or at the club when his presence is announced? Does he ever feel that he is served by subordinates for any other reason than that to refuse it would mean loss

of position or peace? Contrast this with the good-natured man, the optimist, whom every one is pleased to see, who is sure of a hearty, friendly handclasp, who is welcomed with a smile by host and attendant. This man will not only have friends everywhere, at home, office, club, but will be the especial favorite of children. No one will fear him and he will be the recipient of innumerable confidences from old and young. He will be a lover of animals, of flowers, music, the theatre, pictures, literature; the sunshine and all the joys of life. Will most likely have a good digestion and sleep well. Will have an even temper, a pleasant smile, a kind word for all, a warm welcome wherever he goes.

Does it pay to be good-natured?

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#### THE COLONEL'S POST PRANDIUM GRACE

My friend the Colonel recently received an urgent invitation to spend a week's end at the home of some of his friends at their summer residence in the Adirondacks. The invitation was promptly accepted and train named upon which he would arrive. Being himself very fond of cantaloupes, and it being rather early in the season for them, remote from New York City, the Colonel thought to surprise his friends and sent a crate of choice ones on ahead by express. These were found upon his arrival, and the matter explained to the host, who himself met the Colonel at the train. There was room in the trap for the crate and they were taken along. The next morning the melons were served at breakfast and found of exquisite flavor; all at the table expressed themselves as delighted; the Colonel was more than pleased at having brought them. After the breakfast was finished, but before any one had left the table, the Colonel asked permission to utter a post prandium grace. No one quite understood just what this implied, but permission was readily given, when upon closing his eyes and placing finger tips to tips, the Colonel gave voice to the following:

"Lord, I thank Thee that I had the price of these melons."

After a few moments the humor became contagious and the breakfast broke up in a riot of hilarity.

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#### CANADIAN STORM

The wind he blow, he blow like hell,  
 The snow come by 'n by,  
 The trees mak' howl, like great big noise  
 The birds cry loud, some more he die.

The snow she come like gre't big hill,  
 The be'stes much sker'd, fall down.  
 I tie my dog so he no blow 'way;  
 Myself hear no but big, big sound.



One tree he bre'k 'n fall near by;  
Some wolf come spi'k to me,  
I look for knife, but no can find,  
My gun he caught in limb of tree.

So say to wolf, you bet' go back,  
I no can kill, no fight,  
One look me straight an' mak' like howl,  
But no can hear—now black like night.

All night I lay by big ol' tree,  
The dog he come close by my side;  
All night hear roar like big mad sea—  
Much snow all round like one big tide.

The snow she keep from kil' all right,  
But dog an' me no sleep lil' bit;  
Both cry all time, tell God want light,  
He no can hear for wind not qui't.

Me think whole lot, an' long, long time,  
For no have eat, no see all round;  
Now much big snow an' so much shine,  
I think go home, but no find ground.

So me stay close by gre't big tree.—  
No eat, no sleep, think sure must die;  
But big grey wolf he die by me,—  
I find my knife, for piece I try.

T'ree day I lay in cold bed snow,  
My dog an' me eat wolf all 'while;  
Then find my gun an' try go slow  
And mak' for home—snow too big pile.

So eat more wolf, give dog *big* slice;  
Two day more like, I mak' some shout,  
But no bod' come. Snow she like ice,  
An' dog he cry same all tir'd out.

Next day tak' gun an' start for home,  
Dog he try come, but snow much deep;  
So I hav' tie rope an' drag him some,  
But get much tired, fall down, go sleep.

Dog bark all time like hear some shout,  
I no can call, but sleep like dead;  
'Til' Baptiste come an' shak me 'bout  
Then tak' us home an' put in bed.

## MISCELLANY

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### THE PROBLEM OF EDUCATING OUR YOUTH

Mayor Gaynor of New York City recently, in swearing in the newly appointed School Commissioners, including the Superintendent of Schools, attacked the present system of teaching in the city's public schools, particularly the teaching of foreign languages. He declared that "The city schools were turning out boys and girls who feel that they are too good to do ordinary work; such a result being bad for the country. There are too many subjects taught; so many in fact that the children are inspired with a disgust for school, and have but a superficial knowledge of many things and no accurate knowledge of anything. This over education makes them disinclined to work with their hands. They say, let others work with their hands, we will work with our heads. Such a system is a failure. No child ever learns foreign languages in public school."

This very timely and forceable language from so experienced and observing a man must claim attention. On the other hand, we learn from the Boston *Herald* that one boy in every thirty-five who come from private preparatory schools attains high rank in Harvard College. One boy in every six from public high schools attains that rank. This is a contrast that deserves attention.

Here are the details of the comparison: In this year's list of first and second group scholars at Harvard, which includes the recipients of both income-bearing and honorary scholarships, are the names of about 300 students; in other words, one out of every nine undergraduates. Remember this ratio. Now of the students who were fitted for Harvard at five leading public high schools of the Boston metropolitan district, namely, Boston Latin, Roxbury Latin, Cambridge Latin, Brookline High and Boston English High Schools, one in six have made their appearance in scholarship ranks. This is thus decidedly above the average. But of the students who obtained their preparation at those private schools from which Harvard each year draws a large list, namely, Groton, Middlesex, Milton, Pomfret, St. Paul's and St. Mark's, it appears that only one in thirty-five has reached a place of distinction in this season's scholarship awards. That is a ratio so far below the average that it seems to call for more than a superficial explanation.

Now it is conceivable that our private schools, in spite of their admirable teachers and equipment, receive on the whole boys of inferior intellectual promise, and are thereby handicapped by the nature of the material with which they have to deal. But even if this were believed to be the case it would hardly account for such a

marked disparity in subsequent achievements. More likely it is that boys who are sent, too often in quest of social advantages, to the private schools, manage to acquire there a complacent attitude toward attainment in things intellectual and a tendency to put undue emphasis upon those things which, however they may smooth his footway in the circles of polite society, have a tendency to make him a real shirker when it comes to measuring wits with his fellows in the classroom.

Whatever the reason for this showing, the conclusion seems unavoidable that the college or university which draws its student patronage chiefly from the public high schools has a striking advantage in the maintenance of scholarly standards. Therein is a phenomenon of present-day American education which may well have the thoughtful attention of parents, college faculties and school authorities.

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#### THE BANANA

The dictum that fruits should be eaten "in their season," finds its limitations as regards variety in the temperate zones at certain periods of the year. There is, however, one fruit which is readily available and fresh in American markets at practically all seasons, although it grows best from November to April in its tropical or semi-tropical home. It is unfortunate that an article of diet which meets certain nutritive requirements so well, and is so easily obtained at reasonable cost as the banana, should be the subject of misunderstanding among both physicians and laymen. For despite the fact that over 40,000,000 bunches are reported to have been brought to the United States last year, it is popularly stated in many quarters that the banana is difficult of digestion and may give rise to alimentary distress. A study of the constitution of the banana may serve to clear up the misunderstanding. The fruit is brought to our Northern markets green, and ripened by artificial heat. This process can be hastened or delayed within certain limits, according to the momentary demands of the retail trade. The color of the peel will indicate the degree of ripeness. The green banana contains, in the part exclusive of the skin, about 1.5 per cent. of protein and 20 to 25 per cent. of carbohydrates almost entirely starch. In the ripe banana with yellow-brown peel, the edible part contains somewhat less (16 to 19 per cent.) of carbohydrates, but that which remains is now almost entirely in the form of soluble sugars. Broadly speaking, the ripe banana is about one-fifth sugar; the green, one-fifth starch. Most of the remainder of the edible pulp is water. Intermediate degrees of ripeness present starch and sugar in reciprocal proportions varying

between the limits set above.—*Journal American Medical Association.*

Inasmuch as bananas are commonly eaten uncooked, it is obvious that more or less raw starch will be ingested if the fruit is not ripe, *i. e.*, if the skin has not begun to shrivel and darken. Raw starch may be irritating to the alimentary tract of man, and is at best poorly utilized, whether it is ingested in the form of uncooked potatoes, chestnuts, bananas or other starch foods. No one would advise the use of uncooked potatoes; yet many people eschew a thoroughly ripe banana, in the belief that this wholesome fruit is "rotten" when the skin becomes darkened, whereas, they eagerly eat the yellow-green, starch-bearing fruit at a stage of incomplete ripeness. "Green" bananas, like "green" apples, are unwholesome, because the starch has not been adequately converted into sugars in the ripening processes. But the delicious and innocuous ripe banana should not be made to suffer in its dietetic reputation because of the ignorance of the consumer. Here is a chance for popular education.

Experience shows that the thoroughly ripe banana (or the less ripe fruit, after cooking) is undeserving of the unfavorable reputation which it has won in certain quarters. It forms a useful addition to the dietary, richer in nutrients and far more delicious than some of its more expensive competitors.

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#### SUBSTITUTES FOR FOOD AND DRINK

We are informed through advertisements in the lay press, bill boards and offensive literature, that all the ills to which human flesh is heir are due to coffee, and that to have brains a certain substance must be taken with breakfast. This is not only offensive, the worst kind of humbuggery, but persisted in solely for the sake of gain. By some—many, perhaps—this arrogant nonsense is accepted as truth, but to the thinking man and especially the physician it is disgusting. There are a few persons in whom through intemperance in the use of coffee digestive troubles arise, but to the great majority coffee is wholesome, invigorating, stimulating without unpleasant reactions and indispensable to the morning meal especially. Those who suffer from indigestion after breakfast should leave off coffee for a few days. If they find that they improve, then abstain from its use for a period and upon again indulging if they find the same symptoms return, should decide not to use it at all. Strawberries disturb a comparative few as do lobsters, and various other articles of food which are good for the majority. These should not then be partaken of.

Brains are not produced or cerebral activity especially accelerated by breakfast foods. To simply satisfy hunger by filling the stomach without reference to the nutritious value of the food will end in disturbances. In the judgment of those who have investigated the value of breakfast foods a very few of them are to be commended.

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#### A HIPPOCRATIC OATH IN TURKEY

Such an oath, though not called by the name of the Father of Medicine, is published in *Al-Kulliyeh*, the magazine published by the Syrian Protestant College in Beirut. To each of the graduates in medicine the oath is administered by the Turkish head of the Medical Examining Board. Some of the pledges are as follows:

"That, when I am called at the same time by two different patients, the one rich and the other poor, I will accept the call of the poor without taking into consideration the money offered, and will do my best for his treatment; and that I will never decline to answer any call, day or night, during the reign of common diseases or of an epidemic or of contagious diseases. That I will not ask extra fees from the patients, and will not act against my conscience by exaggerating their sickness in order to get the calling fees. That in case of a doubt as to the treatment of a patient, I will not leave his life in danger through a failure to consult other doctors on account of my pride."

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#### RESEARCH

The very soul of research, observes Cannon in *Science*, is the highest degree of honesty. The investigator should see clearly and accurately, with an eye single to the truth. He has to consider not only the observations which fit his theory; but any others as well. The erratic cases invariably make trouble, but they are often disguised blessings. They may indeed be of far greater moment than those which have been anticipated, for they may point the way to entirely unsuspected facts. After the investigator has completed his examination of a group of questions that have interested him, his leading idea, his tests and his results must be described with scrupulous exactness. In thus reporting his work he should strive to be like clearest crystal, receiving the light and transmitting it, untinged by any trace of color.



## BOOK REVIEWS

**HEALTH AND MEDICAL INSPECTION OF SCHOOL CHILDREN.** By WALTER S. CORNELL, M.D., Director of Medical Inspection of Public Schools, Philadelphia, etc. Illustrated with 200 halftones and line engravings, many of them original. F. A. Davis Company, Philadelphia, 1912.

The medical inspection of public schools and the interest taken to preserve the health of the children by various States is of the greatest importance and belongs with other philosophical and scientific advance to the twentieth century, so young and yet so pregnant with discovery and utilization of benefits to humanity.

Hygiene, defects and diseases of the various organs and structure of the pupil are treated in a manner very convincing. The school room hygiene, affection of the eyes, nose and throat, ear, teeth, nervous system, mental deficiency and nutrition, skin, speech, in fact every phase of the subject is carefully written. This, with the numerous illustrations, make the work one of timely and helpful reference. Especially noteworthy is the chapter on mental deficiency. We commend this book to all interested in the subject of school inspection.

**MINOR AND EMERGENCY SURGERY.** By WALTER T. DANNREATHER, M.D., Surgeon to St. Elizabeth's Hospital and to St. Bartholomew's Clinic, New York. Illustrated. W. B. Saunders Company, Philadelphia and London, 1911.

While the author states that this book has been prepared expressly for the resident staff of hospitals and for the ambulance surgeon, to simplify practical work for the junior and to aid the senior, it will none the less be found of value to the general practitioner and even the specialist. The book contains 225 pages of such useful and up to date advice and technical information that all those called upon to do emergency surgery should own the book and make careful study of its various chapters. Chapter No. 1 contains advice to the ambulance surgeon that should be memorized by every one called upon to do such work. The illustrations are well executed and cannot fail to prove helpful.

**THE PRACTICAL MEDICINE SERIES.** Volume 10 of the series of 1911. Nervous and Mental Diseases. Edited by HUGH T. PATRICK, M.D., and PETER BASSOE, M.D., Chicago. The Year Book Publishers, Chicago, Ill.

Our readers will get in this volume all that is new in nervous and mental diseases appearing in current medical literature during 1911. As usual, the book is handsomely printed on fine paper, substantially bound in cloth and illustrated.

**THE PRACTICAL MEDICINE SERIES.** Volume 9 of the series of 1911. Skin and Venereal Diseases and Miscellaneous Topics. Edited by W. L. BAUM, M.D., and HAROLD N. MOYER, M.D., Chicago. The Year Book Publishers, Chicago, Ill.

Section 1 of this volume gives important reference to Skin and Venereal diseases. Section 11 to miscellaneous subjects.

That part of the work devoted to genitourinary medicine and surgery as well as that on syphilis and allied diseases shows, as do other subjects, a careful and studious reading. Dr. Moyer's essays are enjoyable and instructive.

**INTERNATIONAL CLINICS.** Vol. 1, Twenty-second Series. J. B. Lippincott Company, Philadelphia and London, 1902.

This is a notable volume, containing as it does twenty original communications on Diagnosis and Treatment, Medicine, Surgery, Diseases of the Ear, Obstetrics, Occupational Diseases, Eugenics, etc. The article on Progress of Medicine During the Year 1911, by A. A. Stevens, Edward Watson and Lucius W. Johnson is timely and interesting. Experimental Poliomyelitis by Dr. Simon Flexner of the Rockefeller Institute for Medical Research will attract attention. All that has been accomplished in the scientific study of this disease is here given. Other articles: Venereal Diseases in the United States Navy, by Surgeon J. S. Taylor; Sanitarium Treatment of Tuberculosis in Private Practice; The Marks of Diabetes, by James J. Walsh; The Science and Practice of Eugenics or Race Culture, by Meyer Solomon, all help to make this a notable issue even of the Clinics. The book is profusely illustrated with half tones.

### PAMPHLETS AND REPRINTS RECEIVED

THE THIRTY-EIGHTH ANNUAL REPORT OF THE SECRETARY OF THE STATE BOARD OF HEALTH OF THE STATE OF MICHIGAN FOR YEAR ENDING JUNE 30, 1910.

DIGEST OF COMMENTS ON THE PHARMACOPEIA OF THE UNITED STATES OF AMERICA AND THE NATIONAL FORMULARY. Third Edition for year ending December 31, 1909. By MURRAY GALT MOTTER and MARTIN I. WILBERT. Government Printing Office, Washington, 1912.

THE CAUSATION AND PREVENTION OF TYPHOID FEVER. By L. L. LUMSDEN, Passed Asst. Surgeon, Public Health and Marine Hospital Service. Government Printing Office, Washington, 1912.

EPIDEMIC CEREBROSPINAL MENINGITIS. By W. H. FROST, Passed Asst. Surgeon, Public Health and Marine Hospital Service. Government Printing Office, Washington, 1912.

THE RELATIONS OF SO-CALLED BRILL'S DISEASE TO TYPHUS FEVER. By JOHN F. ANDERSON, of Hygiene Laboratory, and JOSEPH GOLDBERGER, Passed Asst. Surgeon, Public Health and Marine Hospital Service. Government Printing Office, Washington, 1912.

TYPHUS FEVER IN THE UNITED STATES. Washington Printing Office, Washington, 1912.

VEGETABLES AS A POSSIBLE FACTOR IN THE DISSEMINATION OF TYPHOID FEVER. By R. H. CREEL, Passed Asst. Surgeon, Public Health and Marine Hospital Service. Government Printing Office, Washington, 1912.

THE CULTIVATION AND MANUFACTURE OF TEA IN THE UNITED STATES. By GEORGE F. MITCHELL. Government Printing Office, Washington, 1912.

REPORT OF THE MEDICAL DIRECTOR OF THE HOT SPRINGS RESERVATION. Government Printing Office, Washington, 1911.

LITHOPEIDON. By WILLIAM SEAMAN BAINBRIDGE, Sc.D., M.D., New York.

THE EVOLUTION OF THE OPERATING TABLE. By WILLIAM SEAMAN BAINBRIDGE, Sc.D., M.D., New York.

Funk & Wagnalls Company wish to announce that they have secured the American rights to "A System of Surgery," edited by C. C. Choyce, Dean of and Teacher of Operative Surgery in the London School of Clinical Medicine (Post Graduate), etc. J. Martin Beattie, Professor of Pathology and Bacteriology and Dean of the Faculty of Medicine in the University of Sheffield, is the Pathological Editor of this important new work.

It will be published in three octavo volumes and profusely illustrated with colored, black-and-white, and text illustrations. Each branch of surgery is treated by the foremost specialists in that particular branch in Great Britain so that the work will really comprise the whole field of surgery from the viewpoint of the foremost British practitioners.

Volume 1 will be ready about the middle of April, and the remaining two volumes will be published about autumn, 1912. The price of the work will be \$21.00 per set.

# The American Practitioner

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## ORIGINAL ARTICLES

### THE CLINICAL IMPORTANCE OF A KNOWLEDGE OF THE FUNCTIONS OF THE HEART MUSCLE

BY LOUIS FAUGERES BISHOP, A.M., M.D.

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The practice of the present day, so far as it is an advancing and improving practice, is founded upon physiology rather than morphology. Morphology is important, no doubt, in anatomy and pathology and in a great many other departments of medicine, and is fundamental. I shall not dwell at all upon the minute structure of the heart and blood vessels, except in so far as I incidentally refer to them.

"The object of the circulation is the supply of a constant stream of material capable of nourishing the tissues, and of replacing the loss of energy sustained by them, and the removal of such waste products as are capable of entering the circulatory channels. In order to facilitate the exchange of products between the blood and tissues, a certain degree of slowing of the flow takes place as the blood passes through the capillaries. As a continuous pressure is required to force the blood onwards, the intermittent pressure conveyed to the blood stream by the heart is converted by the resilient nature of the arterial walls into a constant pressure at the periphery of the arterial system."

"The heart muscle supplies the force which maintains the circulation."

"Heart failure is simply the inability of the heart muscle to maintain the circulation."

There are five great functions of the heart muscle:

- (1) The power of producing a stimulus which can excite the heart to contract—*stimulus production*.
- (2) The power of being able to receive a stimulus—*excitability*.
- (3) The power of conveying a stimulus from fiber to fiber—*conductivity*.
- (4) The power of contracting when stimulated—*contractility*.

- (5) The power to retain a certain amount of contraction even when the active movement has ceased—*tonicity*.

The originating of the theory of these functions was the work of Gaskell, but they have been elaborated by Mackenzie, and brought into general use through his teaching. It is Mackenzie's book that I am quoting as I relate them to you.

The clinical importance of the relationship of these functions to people sick with heart disease is incalculable, because our treatment is essentially directed to the restoration of the particular function at fault. Without an appreciation of the functions of the heart muscle, the treatment of heart disease is a very rambling business.

For that reason we examine all our cases (we are considering particularly the heart) to determine the particular functions that are at fault, and we do not use those remedies that are directed against other functions, at least, we do not if we act intelligently. The great heart remedies all have their particular influence upon one or more of these functions.

Stimulus production is a very hard function to explain. Why, at some particular moment, a stimulus should arise in some particular part of the muscle of the heart is very hard to understand. Formerly, when we looked at the subject from a more superficial and general point of view, we considered that the heart action was under the control of the nervous system; we traced a certain nerve to a certain part, and we said, "That makes that part of the heart muscle contract." But that was not true. And just one proof is enough.

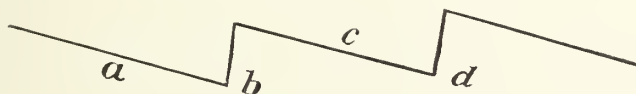
When the heart is separated from the body it keeps beating, and if supplied with proper nourishment can keep on for a number of days, particularly the heart of lower forms of animals. So if the heart beats apart from the nervous system, it cannot obtain its impulse from the nervous system.

Physicians have puzzled over this thing a good deal, and have explained it by imagining the existence of something that we don't know much about, which we call a substance. We say that the heart, when sufficiently nourished, secretes a material that is capable of stimulating the fibers to contraction. This material being continually secreted during a pause in the heart's contractions, accumulates in the heart cells. When sufficient has been stored to excite the heart to contract, it acts and this store is used in stimulating the heart cells. Immediately after the contraction material begins to accumulate again, until sufficient has been produced to excite the heart to further contraction. This function, being continuous in the heart, cannot control the rhythm of the heart, but by its

coöperation with the other functions a rhythmical character is given to the accumulation and destruction of this material.

That is a very beautiful theory, and it is well borne out by clinical experience. The heart accumulates an exciting material. This exciting material is completely used up, and when it is used up it must be accumulated again before another contraction is excited. Excitability proceeds in much the same way as does contractility. The power of contraction is gradually restored, and the longer the time, the greater the power.

We will suppose this to be a pulse tracing, representing three regular beats of the heart:



Here (*a*) the exciting material was accumulated. Here (*b*) it has accumulated sufficiently to cause a contraction. The contraction used up all the material, and accumulated again (*c*), and we have the second beat (*d*).

Now what proofs have we of the gradual accumulation of this material which causes excitability of the heart muscle?

In the first place, you cannot make the heart contract immediately after a contraction. There must be an appreciable interval. If we do make it contract before its regular period we get a much smaller beat than we would later on, and the next beat is postponed until the regular time, unless there is some abnormal reason for the beat occurring sooner. So the period following a beat is called the "refractory period," when the heart will not contract under ordinary circumstances. If it does contract, instead of getting a full beat we get a small one, and then the next beat is postponed until a little later. So that a premature beat is always a small beat. A postponed beat, on the other hand, is always a full one.

Very often, when a feeble beat comes too soon (or is feeble because it comes too soon), the next beat may not occur because of the rhythm of the heart, and then when you finally get this beat you have a much larger one than usual. So that the size of the beat is proportionate to the length of the pause. This is very strong evidence for the theory that the functions are continuously and evenly restored after each beat.

That disposes of stimulus production and excitability, and touches on contractility.

The third function of the heart muscle is conductivity. Strangely



enough, we always think of conductivity as being confined, in a great measure, to nerve structures; but in the course of evolution we find that muscles and nerves have their origin from very much the same kind of primitive cells, and that nerves and muscles are really of the same material, differentiated in varying degree. So that this conductivity is not confined to nerves.

We have found that conductivity is also possessed by other structures, and is undoubtedly possessed by muscles. Just as we have given up the idea that the rhythmical contraction of the heart depends upon nervous influence, so have we given up the idea that the transition of the impulse through the heart muscle, from the place where it originates in the heart, is through the nerves. We believe that the heart impulse passes from one fiber to the other, and this function is known as conductivity. This function has a very important effect upon the regularity of the heart, for when conductivity fails, we find one part of the heart contracting and the contraction not passing to another part of it.

We have certain drugs which can influence conductivity in the heart muscle.

The fourth function is contractility, the power of the heart muscle to contract. The same thing is true of contractility that is true of excitability. When the heart has contracted, it loses the power to contract until that power has been restored. In the same way with excitability, the strength of the action depends upon the length of time the heart has had to accumulate the exciting material.

In clinical work we find that it is very important to detect the earliest signs of failure of contractility because it is the most fundamental and portentous of all the functions, and unfortunately it is the one which we cannot influence in the least degree by any form of treatment except that pointed out by nature—rest.

A person may have shortness of breath, swelling of the feet, and tenderness over the liver, and other signs of failure of the circulation, and we may trace this failure of the circulation to the failure of one or more of the other functions of the heart, and if contractility is not involved, the patient gets along.

Recently I saw a patient illustrating this. Her heart was beating 144 per minute, and had been beating so for three days, and yet the woman was able to come to see me from Hackensack, New Jersey, and was able to get around. The attacks in her case had something to do with stimulus production and the excitability of the heart muscle. They had nothing to do with contractility, so the woman was able to move about, although you could see her whole chest shaking, and she was in great discomfort.

When you find that contractility is failing, as you will have occasion to see in the terminal stages of exhausting diseases and in heart patients who are in a very dangerous condition, the patient is unable to depend upon the heart for any extra work, and then the only possible restoration is rest. We do not see many cases of failure of contractility, as such, except in terminal conditions.

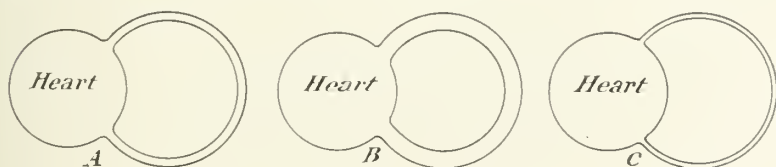
The fifth function of the heart muscle is tonicity. This function, curiously enough, is not always appreciated in its general bearing. We speak of tonicity of the heart as if it pertained only to the heart muscle. Tonicity is a universal property of all muscular tissue during life. It is an evidence of life or vitality in muscles. When life ceases, tonicity ceases. It is not easy to demonstrate the tonicity of the heart muscle because it is acting so rapidly, and there is no particular evidence of it. The clinical evidence that we have is chiefly found when it is absent.

However, the tonicity of a voluntary muscle is very plain. If I move my arm it moves in a fairly steady manner. If on the other hand, you take the hand of a dead person you find that there is absolutely no steadiness to the joints. When I move my arm, the muscles on the back of the arm contract; the muscle on the other side relaxes, and relaxes with sufficient resistance to steady the motion, and that is due to the resistance of the muscle here, which has to be counteracted by the muscle opposite. When a muscle becomes paralyzed, it loses its tonicity, and the result is that the tonicity of the live muscle pulls the paralyzed muscle out of place gradually, and there is a great deal of deformity.

In certain nervous diseases, tonicity is increased, and then you have spastic paralysis and so forth.

So the evidence of tonicity is found in the steady, guarded action of the limb in health; it is wanting in the absence of tonicity in paralyzed muscles; and in its absence, as soon as the muscle gets from under the control of the nervous system.

This tonicity involves not only the heart muscle and those of the blood vessels, but it also has a great deal to do with the integrity of the circulation. Thus, a paralyzed limb is deformed and distorted when part of its muscles lose their tonicity, so the circulation becomes deranged when there is disturbance of tonicity in various parts of it.



You can see very well that if the natural partial contraction of the blood vessels is interfered with, the vessels, instead of being the size (*a*), become that of (*b*), and the heart after pumping the blood into this system of loose blood vessels does not receive back sufficient blood to work properly, and it is perfectly possible for a patient to use the expression that "he bled to death into his own blood vessels," because of the loss of tone in the peripheral circulation. On the other hand, supposing the heart loses its tonicity, then we have the heart dilated a bit, and by the law of physiology, by which the circulation always tries to contract itself to keep up sufficient blood pressure to carry on the circulation, we have the blood vessels, instead of being of natural size, diminished, and note the picture (*c*), loss of tone in the heart, which is compensated for by the blood vessels. That is often seen in peritonitis. The first condition that I described (of paralysis of the peripheral circulation) is often seen in conditions of shock, from which the patient dies from loss of peripheral pressure.

The loss of tonicity in the heart brings about one of the most important clinical conditions that we have to recognize and treat, and when we look at patients with cardiac dilatation we see of what importance the appreciation of it (namely, the loss of tonicity of the heart muscle) is, for it gives us a much more hopeful outlook in these cases, and a key to treatment.

The one great power of digitalis is to restore the tonicity of the heart muscle. Digitalis has no particular power in increasing contractility; in fact no power except to diminish conductivity—you can produce heart block with digitalis; but cannot originate any heart power, so it cannot increase contractility. What digitalis does is to increase tonicity of the heart muscle, and we find that when tonicity is the one thing at fault we have a case in which digitalis acts as a specific; but when a case in which excitability or stimulus production or conductivity is at fault, we have cases in which digitalis will do very little good.

To the patient above referred to as having a pulse of 144, I did not give digitalis, because the tonicity of her heart was all right, and she had none of the cardinal symptoms of failure of the circulation.

Dilatation of the heart is so important that I want to dwell on some of the symptoms. One can find a very good chapter in Broadbent devoted to dilatation.

As a condition, dilatation is exactly what it is called. The heart is actually dilated. The fundamental cause, as I have already stated, is a diminution of tonicity. Dilatation of the heart may involve, and usually does, different parts of the heart in different

degrees. Dilatation follows some acute overexertion in a heart weakened by some disease, or indeed, it may happen in a heart in which we have no previous knowledge of any damage. It affects ordinarily the left ventricle. Cases of acute dilatation are not at all uncommon. In athletes they are seen after boat races, and they are particularly common after cross country racing. That is probably one of the most harmful forms of athletic competition—when a boy races fifteen miles or so across country, with the tonicity of his heart muscle impaired. He perhaps makes a spurt toward the end, and develops all the symptoms of acute dilatation. These cases are occasionally seen in hospital work.

I had one very striking case. The man's business was hanging telegraph wires. This fellow used to race with other men going up telegraph poles, and you can imagine it was a pretty strenuous form of exercise. One day when he got to the top of the pole he became breathless and semiconscious, and was brought to the hospital. For a good many weeks he had dropsy and tremendous engorgement of the liver. He recovered partially, but returned later on account of a relapse.

The slighter dilatations of young athletes are completely restored in the natural restoration that comes to the heart muscle of a healthy young man by rest.

The most common dilatations, numerically, are the failure of the heart muscles, after a long continuous strain, to keep up the high blood pressure as a compensatory element in cases of arteriosclerosis and defective kidneys. Most of our cases of dilatation are of this nature, in which the heart has worked very hard to keep up the high blood pressure over a long period of years, and through failure of health, the heart muscle has lost its integrity, and then some extra strain or worry has brought about the dilatation.

Next to these are the cases that are dependent upon the extra labor that the heart is called upon to do in valvular diseases. In these cases you do not always find the left ventricle involved, but at times the left auricle. In mitral stenosis, when there is a difficulty in the passage of blood from the left auricle to the left ventricle, the auricle often dilates. In pulmonary diseases, there is often a good deal of dilatation of the right side of the heart on account of the extra labor required of it in keeping up the circulation in the lungs.

The physical signs of dilatation are, in the first place, those that you would expect: You find the heart enlarged, and instead of being firm, it reminds you of what it is, a sac filled with fluid. The contractions of the heart which, in health, do really travel from

one part of the heart to another, but invisibly, in this instance can be seen to travel, and you often see on the chest wall a sort of peristaltic contraction, traveling toward the apex. In listening to a heart, you may hear what is known as the "gallop rhythm." You get the sound of a horse galloping over a bridge. That is due to the fact that two sides of the heart are not acting together; you get pulsations on one side of the heart, and then corresponding sounds on the other—a reduplication of sounds.

Another very characteristic effect of dilatation is disturbance of rhythm. A dilated heart is irregular in force and rhythm. This does not happen in all cases of dilatation. It is now believed to be due to the dilatation of the auricle, which interferes with stimulus production, so that instead of a stimulus starting on one point of the auricle, quite a number of different stimuli start at different parts of the auricle, and we have a low degree of what, when more fully developed, is known as fibrillation of the auricle.

The symptoms of dilatation of the heart are the symptoms of the failure of the functions of the circulation—shortness of breath, swelling of the feet and congestion of the liver. This is the disease, *par excellence*, which leads to dropsy and engorgement of the liver, and all the cardinal symptoms of failure of the circulation. These you can trace through the different organs: The brain is over sensitive, and the patient is sleepless; or the brain is sluggish, and the patient is drowsy; the lungs show edema, with moist rales at the base; the liver is large and congested; the kidneys are disturbed so that their functions are diminished and digestion is interfered with. So all the organs are affected.

The treatment is attention to the various organs in the way of rational therapeutics—clearing out of bowels, bland diet, and such measures, but the specific treatments in dilatation of the heart are rest and digitalis. These are the cases in which digitalis gives its most brilliant results.

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## THE ADENOID AND TONSIL OPERATION

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The operation of removing adenoids and tonsils is performed oftener perhaps than any other surgical feat. The procedure seems so simple and the need of it so general that many physicians undertake it after they have seen it done once or twice. This promiscuous



operating by inexperienced men has done much to bring the operation into disrepute in certain sections.

The operation is not a panacea for all the ills of childhood, but there can be no question about its merits in the majority of cases. The benefits attending, if properly done, are greater perhaps than those of any other. This appears quite natural when we consider that it restores the most important function in life, that of breathing, to healthy action. It is gratifying to watch the progress of children after an adenoid operation. Those previously deficient in mental and physical powers soon regain normal intelligence and strength, and where formerly the breathing at night was labored and noisy, it is now so tranquil as perhaps to excite the alarm of the parents. Mouth breathing, recurring colds, ear ache, snuffles, cough, enlarged cervical glands, eye disease, and a host of other disturbances disappear as if by magic as soon as the breathing becomes normal. Occasionally the benefits of an operation are slow in appearing, on account of the chronicity of the symptoms. In certain children the features have been so altered by prolonged mouthbreathing that it takes months and maybe years before they become adapted to natural breathing.

Some physicians hold that no child should be operated upon before the fifth year. There are some extremists, happily but few, who regard the operation as unwarranted at any time. They will say that nature placed the growths there for some purpose, and anyway, why not wait until puberty, when the growths will become smaller of their own accord.

Experience has shown that the time to remove adenoids and tonsils is just as soon as they impair the health of the child, regardless of age. Nothing so interferes with the nourishment of a nursing infant as mouthbreathing.

It is true that many individuals carry their enlarged tonsils and adenoids through life without apparent harm, but it is not unlikely that many of their ills in later life are the aftermath of a diseased throat. It has been substantially proved that rheumatism and kindred diseases, such as endocarditis, pleuritis, etc., are often the result of tonsillitis, the infecting organisms gaining entrance to the body through the diseased tonsils. We all know that ear troubles which appear in later life are frequently traceable to adenoids and tonsils in childhood.

It is unwise, therefore, to defer an operation until a child becomes stronger or grows older, for in all probability the cause of the lack of strength is the diseased throat. There is infinitely less danger in submitting a child to an operation than in permitting the diseased

tissue to remain, for there is no telling when it will give trouble. Most children with adenoids are very frequently ailing. It is well known that they contract infectious diseases more readily than other children, and that they stand a much poorer chance of recovering after an attack of scarlet fever or measles. Such a child will frequently suffer from a discharge from the ear.

Statistics show that there are many recurrences of adenoids and tonsils which necessitate a second operation. Further study of these cases shows that at the first operation the diseased tissues were not thoroughly removed. I have yet to see a case where the complete extirpation of the growths was followed by their return.

When the necessity for this operation arises the procedure should be a thorough one. It is not an operation for the office, or to be done in a haphazard way upon a struggling child. It is necessary that ether be used, in order that the parts be relaxed and easy of access, so that the operator can work with deliberation. Many an operation is spoiled because it is hastily done, or because the child struggles. It is not only cruel, but also unsurgical, to operate upon a frightened infant without an anesthetic.

It frequently happens that besides adenoids and tonsils, a turbinal hypertrophy or a septal deformity is present which must also be removed in order that the breathing become free, and it is astonishing how often a raspberry like enlargement of the turbinate is encountered with the snare, which had it been left behind, would have marred the success of the operation. Operations done with the finger nail are usually failures, as it is a physical impossibility to remove adenoids completely in this way. What the operator does, is to squeeze the mucus out of the growth and thus reduce its size. Even were it possible to successfully operate in this way, the measure merits condemnation, because of the liability of infection from the finger nail. In adenoid operations sepsis, when it occurs, is vastly more troublesome than hemorrhage. I recall to mind three children who suffered from a stiff neck through infection of the deep lymphatics of the neck, after a finger nail operation for adenoids. All of these children had to be operated upon again, when considerable adenoid tissue was found.

The unskilful use of instruments in the nasopharynx is accountable for much of the nonsuccess in adenoid operations. There is no limit to the amount of injury that can be done to the throat by a clumsy operator. The adenoid forceps is the principal offender. Quite frequently it lacerates healthy tissue and causes more disturbance than the adenoids did. We frequently see cases that have been operated upon, where the nasopharynx is bound together by

dense bands of scar tissue, which interferes with respiration and hearing. A torn palate is another common evidence of the misuse of the forceps. The tear is sometimes so extensive as to cause difficulty in swallowing and in speaking. Many of the dry throats that are seen after this operation are the result of the too vigorous use of the adenoid curette. In the hands of an expert the curette is more useful than the forceps. In the hands of a novice it is often worse than useless, it is harmful. Frequently it not only tears the adenoids, but it strips the mucous membrane and the periosteum from the pharynx as well. In doing this, it leaves behind a dry glazed surface which constantly becomes crusted with mucus from the nose, much to the annoyance of the sufferer. On one occasion I was asked to see a child that was dying from sepsis, a week after an adenoid operation. I found a decomposing mass of adenoids in the pharynx which was but partially detached.

A common mistake is to remove the tonsils but not the adenoids. When the tonsils are enlarged, we can rest assured that adenoids are also present. As a matter of fact, adenoids usually cause more symptoms than tonsils. Slightly enlarged tonsils in a growing child should be left alone. They probably serve a purpose. They drain the postnasal space, and when infection occurs in this region, they become swollen. The proper thing to do in a mild recurring tonsillitis, is to remove the source of infection, the adenoids, and await results.

It is the location of adenoids and tonsils rather than their size which determines their troublesomeness. This is also responsible for many imperfect operations. A scattered mass of adenoids is far more disturbing and harder to reach than a central mass. In the same way the flat and embedded tonsils are decidedly more troublesome and difficult of access than large pendulous ones. Large tonsils may interfere with respiration, but the flat ones are those that usually affect the ear, the pharynx, and the bronchi. The rheumatic tonsil is nearly always the flat and sunken one.

Sometimes an operation fails to relieve the condition for the relief of which it was performed, much to the chagrin of all concerned. For instance, frequent nose-bleeding in a child is suggestive of adenoids, yet it may come from a septal abrasion or from turbinal hypertrophy. This should be ascertained before operating.

Enuresis is all too often attributed to adenoids. I fail to note where the association occurs, excepting it be owing to the restless sleep of mouthbreathing children. At any rate, if the operation is performed solely for the relief of the enuresis, disappointment usually follows.

Enlarged cervical glands generally disappear after an adenoid and tonsil operation. Indurated glands, however, disappear slowly and they may require further treatment, hygienic and medicinal.

There is no doubt that most ear troubles are due to adenoids. It does not follow, however, that the discharge will stop the moment the adenoids are removed. In a chronic discharge this is not sufficient. It is my practice to precede the adenoid operation by cleansing the ear and then scraping the middle ear with a small dull spoon, removing evidences of necrosis and granulations. It may be necessary to incise the drumhead for better drainage. Once the ear is clean and its aeration good, the discharge nearly always ceases.

In operating upon the throat of a child with a tendency to ear-ache, care should be taken not to injure the eustachian tubes, lest a smoldering lesion be fanned into flame.

A chronic cough in a child is usually relieved by an adenoid and tonsil operation. Occasionally lingual hypertrophies also are present and add to the irritation. They, too, must be removed if their size is excessive.

Certain eye diseases, notably granular lids, are influenced by the state of the nose. The adenoid operation usually helps the condition, but in addition, the lids should be squeezed and appropriate treatment given to the eyes.

An operation that has for its purpose the clearing out of the nose and throat ought to improve the voice, and so it does. Many people are of the belief that the voice deteriorated when the tonsils were removed. Occasionally it does, especially if the faucial pillars have been injured, but as soon as the voice becomes adjusted to the larger resonating chamber, it becomes clearer than ever.

From time out of mind tonsils have been the objects of much abuse. In attempting to reduce their size they have been clipped, gouged, cauterized and treated in many other unsurgical ways. In the light of our present knowledge, such methods are unscientific and unwarranted, and they seldom effect a cure. Unquestionably the old fashioned way of removing a slice of the tonsils with the guillotine does much good, in tonsils that stand out prominently. Even here the operation is incomplete, in that the deep crypts are not entirely removed and usually give trouble later on. It is the same with adenoids. A sweep of the curette or a bite of the forceps may remove the whole central mass of adenoids, but the troublesome growths in the fossa, that occlude the orifices of the eustachian tubes, escape destruction.

The ideal way of removing tonsils in young or old, is to dissect them from the faucial pillars and then enucleate them, capsule and

all. In this way dangerous hemorrhage is avoided and the shock is lessened. In removing adenoids, use the largest curette that will enter the postnasal space. The remaining adenoids can then be located with the finger and extracted with a small curette or a small adenoid forceps.

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## CEPHALALGIA ASSOCIATED WITH COITUS, A REFLEX PHENOMENON OF CHRONIC PROSTATITIS

By ABR. L. WOLBARST, M.D., New York

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The symptoms of chronic prostatitis, whether of gonorrheal origin or otherwise, are practically the same. Briefly, they may be classed as urinary, reflex and sexual (Young). This division must be accepted as an arbitrary one, inasmuch as the symptoms often overlap one another, and the same patient may present symptoms derived from more than one division.

The most common of these, I believe, are the so-called referred or reflex symptoms; next in order of frequency are those of the sexual class, while the distinctly urinary phenomena seem to be least in frequency.

The referred symptoms are usually found in the patient whom we designate, for want of a better name, as the neurasthenic or hypochondriac. This is the patient who comes to us, complaining of all sorts of pains and aches in the most improbable sort of places, which defy the closest diagnostic scrutiny, and leave one convinced of either one of two facts, namely, that the examiner does not know his business or that the patient does not know what is the matter with him. These are the most unsatisfactory cases with which the genito-urinary specialist has to deal,—unsatisfactory from the standpoint of exact diagnosis and treatment, as well. These are the patients that are seen in all of the clinics and in consulting rooms, wandering about from one place to another, until the man is really unfitted for anything useful. He loses his positions one after another, and sooner or later becomes a more or less useless member of the community.

In these patients the pains may be described as vague and indefinite, never acute, and usually flitting and unstable in character. If



you ask the patient to point out the location of the pain, he is often unable to do so; at best, he moves his hand about the region affected, as though he were uncertain himself as to the exact spot that he is trying to point out. It is usually well-nigh impossible for him to point his finger to a single spot as the location of his trouble.

Again, the pain often moves about, so that while the patient complains of feeling pain at a certain area on one visit, he will describe quite another ache in some other location on his next visit.

These reflex or referred pains are typically located on the surface of the body. They do not affect the viscera. Their most common site is in the lower part of the back, or in the perineal region; occasionally in the groin and sometimes along the course of the sciatic nerve. Pain in the throat and neck is not an unusual symptom and headache is often present, either as the predominant symptom or associated with others. Patients often describe a sensation in the urethra, anteriorly to the cut-off muscle, which causes them much annoyance. It is a creeping or ticklish sensation which is exasperating to these sufferers. They do not seem to be able to rid themselves of this sensation; it is sometimes increased during urination, or when the bladder becomes full. It is nearly always associated with the statement that after urination, some of the urine appears to be retained in the urethra. In other words, there is an additional complaint that the urethra does not completely empty itself. When you examine the meatus immediately after urination, you will find that the usual few drops of urine remain in the urethra, but the patient does not accept your explanation that there is nothing abnormal about these few drops remaining inside of the urinary orifice.

All of these symptoms have been thoroughly described and they are all familiar to the medical practitioner. The great difficulty in most cases is found in associating these symptoms with the chronic affection of the prostate. The general practitioner, unfortunately, is not so apt to recognize in these vague and indefinite symptoms a chronic inflammation of the prostate, and unless he bears them in mind continually, his best efforts are very likely to go unrewarded. It is, therefore, important to remember that the prostate is usually the cause of these referred pains, and that suitable treatment directed at the chronic inflammation in the organ will very often bring about a marked improvement and sometimes a striking cure.

I have had the opportunity of encountering a symptom of chronic prostatitis, which I have not hitherto seen described or mentioned. Within the past year three patients have presented themselves with this same complaint, and I have no record of ever having met it

before. In each of these cases the patients complain of severe headaches directly associated with the act of coitus.

In the first case, a physician, aged 38, married, complained that for about a year he had suffered most excruciating headache while in the act of intercourse. He denied ever having had gonorrhea, but his prostate was large, soft and boggy, and undoubtedly presented a chronic inflammation. He stated that the pain began as soon as erection took place and continued for an hour afterward. He could not locate the pain exactly, but it seemed to cover the entire top of the head. He never had headaches otherwise and was in all other respects perfectly well. Coitus was indulged in about twice weekly, sometimes more often, but not usually so. He never practiced "withdrawal," and in all other ways lived quite a normal life.

Case two was that of a man 34 years old, married, who complained that immediately *after* coitus he suffered from excruciating headache, and in his own words "felt like a crazy man." In this patient I also found a large, congested prostate. He admitted having contracted gonorrhea about fifteen years ago. He practiced withdrawal for about two years previous to the appearance of these headaches, and stopped the practice as soon as he associated them as cause and effect. During coitus he felt no pain whatever, but as soon as the act was completed the headache came on and lasted for periods varying between six and ten hours. He denied indulging in coitus more often than about once a week.

In this case an examination of the deep urethra with the posterior urethroscope revealed a very large and red colliculus, associated with a distinct congestion of the entire prostatic urethra. Treatment applied to the prostate, consisting of massage and local applications to the colliculus, improved the condition considerably, so that at present the headaches are much less marked and the "feeling like a crazy man" has disappeared altogether.

The third case, that of a married man, aged 42, is similar to case one in that his headaches come on *during* coitus, but as soon as the act is over the pain disappears. This man has also practiced "withdrawal," and associates the appearance of the headaches with the practice, though he believes that he suffered long before he began "withdrawing." In this case the colliculus was also deeply congested, and local treatment directed at the prostate and the colliculus brought about a marked improvement in the condition. It is also worthy of notice, that a persistent pruritus ani, which had persisted for many years, in spite of the most intelligent treatment, showed a distinct improvement while under treatment for the

prostatitis. This is in accord with the well known observation that pruritus ani is often associated with and dependent upon a chronic prostatitis.

As to the etiology of these headaches, and their association with the previously existing prostatitis, it is difficult to say anything definite. One might hazard the opinion that there is a disturbance in the reflex communication of nerve fibers between the prostate and the brain. It is stated that fibers from the 10th, 11th, and 12th dorsal, 1st, 2d and 3d sacral and 5th lumbar segments, enter the prostate,\* and Young declares it not improbable† that fibers are also furnished from the first lumbar segments. It would appear from the three cases mentioned in this report that there exists a distinct relationship between the act of coitus and the severe headaches, and there must be some causative factor in the sexual act which serves as a nerve irritant in these particular cases. I have made careful inquiry as to the occurrence of involuntary seminal emissions in these patients, and all of them tell me that they are not followed by the ill effects complained of. On the other hand, it is not unusual to encounter patients who complain of mental dullness and headaches after an involuntary seminal emission. I am inclined to the opinion that the same cause is operative in both classes of patients, and I am furthermore quite convinced that in all of these cases the cause is to be found in the chronically inflamed and congested prostate.

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## CIRCUMCISION OF THE PREPUTIUM CLITORIDIS

By DOUGLAS H. STEWART, M.D., New York City

Possibly justification should precede description when such an operation is discussed. In my last case the indications were a so-called phantom goitre, a constant lumbar pain of the dull and heavy sort, a spasmodic and sympathetic contraction of the figure of eight muscles (Vagino-anal sphincter), a phantom tumor which the patient mistakenly termed her left ovary, and a desire for sexual intercourse, but when this was attempted there "was nothing in it." Hardly a frigida, but a very nervous, irritable, disgusted wife.

Granted that the patient is a fairly robust woman and that she has a phantom tumor in the thyroid region, then an adherent prepuce and an irritative albuminuria are fairly constant. No reliance can be placed on any nitric acid test (either cold or hot), because the

\*Head: "The Pain of Visceral Disease."

†Young: Johns Hopkins Hospital Bulletin, vol. xiii, page 317.

albumen is often only minute in quantity: the constant faint trace is the rule. Consequently if specimens of urine are sent to two different laboratories two directly contradictory reports may be returned.

The clitoris in the aforesaid patient was buried. It could not be seen, but could be plainly felt. Dr. Clement Young, who assisted me at the time of operation, told me afterward that he thought the woman had no clitoris and was surprised when he saw me turn it out. Any one depending on sight alone would be impressed in the same way. However, the clitoris is now plainly visible, and the results of operation have been eminently satisfactory to all parties concerned.

The clitoris is so much smaller in size than the penis that mere preputial redundancy is seldom a factor, therefore no tissue should be removed, as there is none to spare, and the organ (clitoris) requires a protecting hood. Such a hood or roof is one of the results of the operation, the steps of which are as follows:

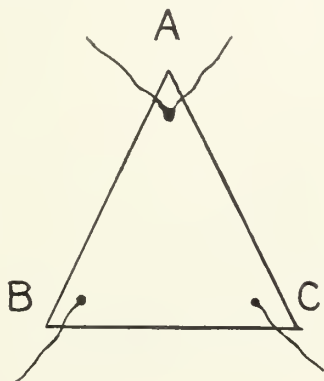
1. Seize the edge of the prepuce, at any convenient spot, with a mouse tooth forceps. Divide and separate the adhesions with a blunt probe till you expose the glans and the sulcus of the corona. Take a piece of paper, cut it into the shape of an isosceles triangle, write the letter A at the apex and the letters B and C in the basal angles (i.e., the other two corners), then it can be made plain how the stitch is inserted.

Let this triangle represent the preputial curtain, the base line its free edge, and imagine the whole as covering the glans clitoridis.

2. Pass a double threaded needle under the free edge or base line and bring it through the paper near the apex A.

3. With a self threading needle pass the two free ends of the thread through B and C.

4. Remove all needles—cut out the top one and you have



5. Tie the end at A to ditto at B.
6. Tie A to C.
7. Tie the ligatures with three knots and cut them off rather short, as long ends irritate the parts and (I think) cause retention of urine and necessitate catheterism.

When this has been done as directed the curtain, is rolled up and becomes a hood or bar arching over the glans. Cut this bar by snipping carefully with scissors and all the parts will fall into good position. Some ordinary care is required in order not to cut the ligatures, but if this accident should happen just replace the severed thread with a new one. Have an extra needle threaded and at hand for this emergency, which need not arise. The time required is perhaps five minutes. The operation is very simple and bloodless. The chances of absorption and infection are minimized. And the glans when erect will be exposed, when flaccid it will be protected.

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## MEDICAL JURISPRUDENCE AND REMARKS AS TO THE DEATH PENALTY OF MURDERERS\*

BY JOSEPH W. IRWIN, M.D., Louisville, Ky.

Psychical insanity—or moral insanity—may be defined to be a want of harmony between the power which controls the mind and that of the animal functions in which acts of every kind are not regarded as detrimental to one's self or to others. Under this head are included murderers, burglars, highwaymen, and malefactors of every kind. This mental disturbance is usually the result of heredity, but it may be acquired to some extent by association. In those burdened with heredity there is no hope of cure, as the impression is fixed and has become a part of the biophors and idants of the primitive cell, and no sense of wrong doing is felt by the transgressor, while in the acquired there remains a consciousness of errors, since the criminal impression did not have its birth in the infinitesimal decimal's biophore and idant. In the case of heredity, the criminal's association and cunning often holds their individual passions in abeyance, or until opportunity affords the moment for action, when to them a sin concealed is not only half, but wholly forgiven. It was Burns who said:

"The fear o' Hell's a hangman's whip  
To haud the wretch in order."

\*Read before the Louisville Clinical Society.



But the fear of Hell has no terror for those who, by Nature, are mentally depraved. Murder is about the only crime in most of the civilized countries for which the criminal may be punished by death. There was a time when thieves and highwaymen were put to death for their crimes, but popular sympathy for those miserable creatures, and a more intimate knowledge of mental vaporings have done away with the death penalty in such cases. Law makers found authority for the death penalty for murderers in the Bible, where it says "Whosoever sheddeth man's blood by man shall his blood he shed," and "A life for a life," etc.; but they seem to have ignored the fact that Cain was not put to death for killing his brother, and other heinous crimes are mentioned in the Bible which were allowed to go unpunished by death. The progress of evolution has made changes in the minds of men, and more accurate knowledge has caused men to pause and take a calmer view of the motives and mental status of murderers. Now when it can be shown in criminal courts that the murderer did not know at the time he committed the deed the nature, quality and consequence of his act, he is sent to an insane asylum instead of the guillotine, the gallows, or that more refined way of killing, the electric chair; so it may be seen that the trend of human thought is engaged in the study of the murderer's mentality, and slowly but surely the public conscience is turning away from thoughts of brutality, and allowing a broader knowledge of those mentally deficient to dispel hatred and revenge.

We read every day of men and women killing each other for some trivial cause, or no cause at all, and escaping in law courts the consequences of their crimes, until we are led to believe that any one may destroy human life and go unpunished if he has the price. In fact it appears that in some places human life is of less value than the loss of a cow. An Illinois magistrate, trying a man for stealing a cow, when the lawyer for the defense entered the plea of insanity, remarked that the plea might be good if he had committed murder, but not in the case of stealing a cow. England is pointed to by those who favor the infliction of the death penalty as having few murders because of the penalty being quickly visited on the murderer. I believe the real cause is far deeper down, and fear has very little to do in diminishing crime. It is not that heredity is less in England, but the people are taught from their infancy respect for law and order, and such things as lynchings and the so-called "unwritten law" are never heard of in the British Isles. Again, the English criminal has not the means or the opportunity for his crime that this country affords. The legal quibbles permitted

in this country in the trial of criminals sometimes make them to appear as heroes, and excite a false sympathy for them.

Psychical disturbances unaccompanied by irrelevant speech or physical violence are as yet not sufficiently understood generally to have their true meaning appreciated. The human mind may conceive and construct any theory and proceed through the motor centers to carry its wishes into effect, whether they be of love, hate, revenge for an imaginary or implied wrong, or a desire for wealth or fame. The mental status may force the individual to commit any dreadful crime, to enable him to put into effect any sort of scheme regardless of the consequences. Sir Francis Galton has shown by the law of filial regression that offsprings are on an average smaller the more remote the kinship. Mendel's experimental study of heredity has laid the foundation of much that is of real value on this subject. Let us now take a brief view of heredity as it is expounded theoretically and by observation. Mendel has shown by experiments on plants and animals that the hybrid resulting from the double primitive cells may be tall or short when the tall determinants of one parent unite with the short determinants of the other. The hybrid thus formed may have some factor from the tall parent cell which is absent from the short parent cell, and the reverse. Some cells from the same parent may possess energy, and some may not. The cells may be badly nourished or weak and unable to take up nutrition, or nutrition may be absent, and hence the hybrid partakes of the size, shape and nature of the parent whose cell is well nourished and strong. This is the most reasonable explanation of the tall and short children born of the same parents. Now let us see by what sort of reasoning family likenesses, family peculiarities, and the shades and color of the hair and eyes are shown in the hybrid. There are several theories on this subject, but the most plausible are those of Darwin, Spencer, and Weismann. The theory of pangenesis, strongly advocated by Darwin and Spencer, is to the effect that invisible particles or essences from all the cells of the body permeate the entire biophors of the reproductive cells, which accounts for family likenesses of body and mind. The theory of epigenesis, espoused by Weismann, is that the basis of inheritance is in the chromatin of the nucleus of the germ cell, and that the contact of cells forms the hybrid, and that a part of the germ plasm in the parent egg cells is not used in the construction of the hybrid, but is reserved unchanged for the formation of the germ cells of the following generation. We cannot dispute either theory, for the result is the same whether inheritance takes place by surface contact or the center of the cell through its

biophors and idants, or the chromatin of the cell nucleus. The regressive feature as to stature may be accounted for by the vitality of the female being stronger than that of the male, and more children inherit the mother's traits in every particular. Now as we have seen that family features and dispositions are inherited, it is reasonable to believe disease and crime are also inherited, and if inherited, we must have a feeling of sorrow, which should temper our judgment with mercy for the murderer. Burns, pleading for mercy for his overpowering passions in a prayer in the prospect of death, says:

"Thou know'st that thou hast formed me  
With passions wild and strong,  
And list'ning to their witching voice  
Has often led me wrong."

Do not put him to death, for, as the lawyers would say, it is a dog-fall to kill him. Restrain him and do not allow him to propagate his kind. A noted criminal lawyer has suggested that murderers should be confined in the penitentiary for life, and the Governor should be deprived of the power to pardon murderers. Confine him for life in the penitentiary or a suitable colony, and make him self-sustaining; give him proper food, clothing and shelter; keep him clean and in good, sanitary surroundings; give him books to read, and some sort of amusement to engage in when his physical labor of the day is over, so that the weak and mentally deficient of the race may have "Some calm and gentle way to mingle kindly with their fellow clay."

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## A JUST CHARGE AND A SANE VERDICT

BY THE EDITOR

Willis V. Cole, a Christian Science "healer," was on March 30th, in the Criminal Branch of the Supreme Court in New York City, convicted by a jury of practicing medicine without a license. Justice Seabury charged that "one who holds himself out by sign, card or public advertisement as being able to cure, treat or prescribe for any human disease, pain, deformity or ailment, and who maintains a public office to which persons may come for treatment, and who receives a fee, is engaged in the practice of medicine under the meaning of the law." "I charge further," continued the Justice, "that even though surgery is not resorted to and no drug is used, and also even though the person so holding himself out engages in prayer, he is engaged in the practice of medicine under the meaning

of the law." Justice Seabury mentioned also a decision of the United States Supreme Court, in which the right of the State to interfere in matters of health is upheld, even though religious tenets were alleged in opposition to such interference.

Cole was fined \$100, which he paid in Court. This was his second trial on this indictment, the jury having disagreed in his first. Assistant District Attorney Nott, who appeared for the people, emphasized that Christian Science was trying to establish for itself a special privilege which no other sect enjoys. Christian Science declares there is no such thing as disease; the State, however, finds disease a stern reality. The defense moved Heaven and earth to have this a jury trial. It is, nevertheless, in nowise content with the result; and Cole's attorney, Samuel Untermeyer, declared his intention to carry the case to the Appellate Division; and, if necessary, to the Court of Appeals. Any sensible person can foresee the outcome of such a course.

Among many abhorrent things said in defense of Cole it was declared: "The law that Cole was indicted under would make out Jesus Christ a criminal; the only verdict you can bring against Christian Science is that it is too good to be true!"

How repugnant are such statements in behalf of what is well known to be essentially a powerful organization for the accumulation of wealth; an organization which has no clinics or missions among the poor, which has for a tenet that "no one has any business to be poor"; an organization whose leaders are conspicuously rich even in these days of enormous fortunes. When these leaders claim to be actuated by the spirit of the poor Nazarene, and to be endowed by His power, one wonders if hypocrisy has ever before gone to such unspeakable length.

Christian Science has ever claimed to be a religious system, of which the treatment of the sick is part and parcel; that as the Constitution forbids interference by the States with religion, no laws can be enacted which could compel the "healer" to desist from his malpractice—no laws such as are ever ready at hand to be applied against registered physicians. It is to be hoped that henceforth a sharp distinction will ever be drawn by the courts, between religious liberty and the license of any pseudo-religion to commit, in the name of religion, unlawful acts.

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## EDITORIALS

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### THE CRIME OF LUXURY AND THE LUST FOR SPEED

No one appears to have placed the blame for the awful disaster at sea which has staggered humanity and thrilled all hearts exactly where it should be placed. Undoubtedly the primary and most important cause of the accident to the *Titanic* with its holocaust of lives was the love of luxury and the hysteria of haste, which distinguishes members of modern society and business circles, especially in this country. Persons who travel, and these remarks apply to Americans in particular, demand unlimited show, some comfort and excessive speed. This fact is demonstrated to its widest extent in the United States, in which railway traveling is more luxurious and less guarded by life saving regulations perhaps than anywhere in the civilized world. The same may be said of automobile driving, for the deaths and accidents from both these causes greatly exceed those of other countries.

As regards ocean traveling, of course, the Atlantic Ocean is the greatest highway, and in the nature of things the passenger ships which ply between Europe and America, carrying hundreds of thousands of passengers backwards and forwards yearly, are the best afloat in all respects. But in recent years the competition



between the lines of different nations and companies bidding for the rich Atlantic trade has been carried to an almost insane point. The chief reason for this ruthless competition has been the desire, even demand, for luxury and speed by wealthy Americans. Much has been sacrificed to safety, in order to gratify this demand. The company which pandered most to this somewhat morbid craving obtained the largest passenger list, so that it has been incumbent on any line which has sought to gain profits and prestige to use every effort not to be outdone by a rival company. If a German line built a ship which traveled so many knots an hour, containing restaurants, grill rooms, tennis courts, gymnasiums, with elaborate suites of apartments, bands, and so on, a British company would build one in all details superior and having some novel features which the German boat lacked. And thus it has gone on until the *Titanic*, said to be the last word in ocean steamships, and supposed to be unsinkable, has in three or four hours' time gone down in two miles of water, carrying with her some 1,600 men, women and children. It is true that she had not sufficient boats to save all aboard, and it is probable that neither have the ships of other lines; it is also perhaps true that she was not navigated cautiously enough, but it still remains the fact that the underlying cause of the most fearful tragedy of the sea in the annals of history was the love of luxury and the lust for speed, called for by the rich and catered to by the steamship companies. More steerage passengers by far travel across the Atlantic than first class passengers, but it is not for them that money without stint is lavished on interior decorations and comforts. Neither is it for the ordinary traveler, but it is for a comparatively small class of excessively rich persons who have evolved abnormal tastes.

Therefore, when luxury and lust for speed are carried to such an extent that human lives are risked, they do constitute a crime and sin against humanity. Out of evil good will come; in the future ships will be equipped with boats sufficient to carry all the passengers and every due precaution to safeguard life will be taken. It may be that the catastrophe off the banks of Newfoundland will prove a blessing in disguise. It may be the means, although this is too much to hope, of acutely drawing the attention of the Ameri-

can people to the mental and physical harm engendered and fostered by the love of luxury and the lust for speed, which are the predominating phases of business and social life of to-day.

The life led by the American business man and the fashionable woman, or indeed the woman of almost any class in the city, is a continual nerve storm. Once in the Scylla of business or in the Charybdis of society one is subjected to a nervous strain which only the strongest can withstand. Neurasthenia and nerve troubles are rampant in the land, and unstable temperaments are passed on to the next generation and will be just so long as a large proportion of the people continue to overstrain their mental and physical machinery. The *Titanic* tragedy will call a halt to slipshod methods on passenger boats at sea, and should impel the rushing, bustling business men and women and the equally hard working men and women in pursuit of the phantom pleasure to consider their ways and to ask themselves if the game is worth the candle.

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### ORGANIC PRODUCTS BY CHEMICAL SYNTHESIS

Since the production of urea by Wöhler, in 1828, organic synthesis has advanced by leaps and bounds, until to-day we are able to reproduce products in endless varieties identical with those built up by nature in animal and plant. It is a long stride from chemical methods of a century ago; from the preparation of the crude chemical products of those times to the building up of substances in the laboratory which are identical with those found in the organs of plant and animal life; from potassium bromid to an artificial active principle of an organ of the animal.

Wöhler's accidental discovery proved that a substance identical with urea, a product thought only possible with the aid of animal or vegetable life, could be made through the reaction between potassium cyanate and ammonium sulfate, or in the chemical laboratory. This may be regarded as the first artificial preparation of an organic compound, which led to further research, and thus the manufacture of an endless number and variety of medicinal products, many of them of great value to medical science as well as in the arts. Thus the clinician finds remedial agents superior

in most instances to the natural substances, as they are free from extraneous or side products.

No doubt exists but that our knowledge of the physical properties of chemical composition and structure enables us to predict the physiologic action and remedial value of a substance, for it has been shown that the action of certain products may be so modified by the introduction of a new molecule or withdrawal of a component part of a chemical substance as not only to lose its original properties, but to actually become pharmacologically active in the reverse direction. This is clearly shown in the action of morphin and apomorphin. The difference chemically between these products being the withdrawal of one molecule of water ( $H_2O$ ) from morphin to produce apomorphin. Why there should be the physiological difference between these chemicals is accounted for through chemical structure. Thus the trend of research is the question of chemical structure, for the specific action of a remedy depends upon its constitution rather than its composition. Chemistry, physiologically, pathologically, as well as therapeutically, may therefore be regarded as the foundation of medical science.

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## VENESECTION

Bleeding, or venesection, was in former times a universal therapeutic measure. It had come down from and been sanctioned by Hippocrates, in fact used, we are led to believe, long before his time. In the writings of Galen and Celsus we find frequent mention of its use, and as the writings of these men were regarded as law, no appeal or innovation would have been allowed; consequently, venesection was practised for centuries in either sex, at any age, in every type of complaint, in acute as well as in the asthenic or anemic conditions.

The young were bled freely because of the rapid reproduction of blood in youth; the old because it was conducive to rejuvenescence; in low and wasting diseases, because richer and better blood would thereby be formed; in dysentery, because of its affinity to inflammation of the lungs, in which all physicians bled; in all forms of flatulency, because of its power to relieve obstructions. Hippoc-

rates writes that "persons who are benefited by venesection should be bled in the spring." It was not to be practised in the warm months of summer. We learn that a special glass container was in every nobleman's house in Italy, used alone as a receptacle for the blood of the members of the family. These containers became heirlooms and were passed from generation to generation of the descendants. They were not to be used for others than members of the family.

Sydenham (1624-1689) lays down the following rules for blood letting: "Whenever I have to deal with a patient whose blood is in itself of a weak character, as it is for the most part with children, or deficient in animal spirits, as with men in the decline of life, and in youths that have long been invalids, I keep my fingers from the lancet. Whenever, on the other hand, the state of the blood is of a different description, such as I find amongst youths of an athletic habit and a sanguine temperament, venesection is my leading remedy. As to quantity, it is my practice to take away just as much blood as I consider will relieve the patient."

Sir Thomas Watson (1871) gives the following indications for venesection: "The condition which cries out for and obtains relief so signal and immediate from phlebotomy, may be described as that of great and often sudden engorgement and distention of the vessels that carry black blood of the system's veins, of the pulmonary artery, and especially of the right chambers of the heart. In this embarrassed condition of the circulation with so unequal a distribution of blood in the two systems of vessels, it is the veins that require emptying, not the arteries. As the tension of the stretched and almost paralyzed right vessel is lessened, the hollow muscle again becomes capable of contracting and propelling its contents; the clogged lung is set free; the function of the oppressed brain are eased and retrieved and the balanced play of the heart and lungs restored."

Dun used venesection in uremic coma, not for relief of mechanical obstruction alone, but that the poison is withdrawn with the blood.

Zacharin recommended venesection in certain disturbances of the cerebral circulation, in the presence of evident symptoms of

threatening or already occurring cerebral apoplexy, in patients with chronic nephritis and hypertrophy of the left ventricle, and in some disturbances of the circulation within the chest. He advised blood letting in acute pleuropneumonia, acute pleurisy. Raymond, as a method for mechanical disintoxication in all cases which represent severe blood intoxication, used blood letting.

Robin, in 1900, said that moderate bleeding induces polyuria and the excretion of solids.

Tyson writes that blood letting is indicated in two periods in croupous pneumonia: in the early stages for the relief of pain and dyspnea, and in the advanced stage when there is engorgement of the right heart associated with intense dyspnea and general venous stasis.

Venesection is induced by the lancet, wet cupping and by leeches, and may be said to afford more prompt and permanent relief in indicated cases than other measures.

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### RECREATIONS OF THE PHYSICIAN

It may be stated with no fear of contradiction that every busy man is the better in mind and body for having a hobby. The fact is too well known to require emphasis, that change is necessary in order to keep the mental and physical machinery in a high state of efficiency. The same kind of work day after day, however engrossing, cannot but become monotonous, and a change of labor and change to some description of amusement at the same time refreshes, stimulates and relaxes the mind and body so that the individual will proceed to his appointed task with renewed vigor. Men of science, those who delve deeply into the secrets of nature, and endeavor to elucidate their obscurity for the good of humanity, especially stand in need of change of pursuit. Happy then is the man who has a hobby outside the routine of his daily toil. It matters not that the task be self-appointed and beloved, a hobby is valuable. Most of the great ones of the earth have possessed such a means of relieving the strain of continuous and monotonous occupation. Of all men, however, it is most fitting that the physician should be enabled thus to forget for a time his professional duties. It is a question whether



relaxation should take the form of an intellectual or physical exercise. This is to a great extent a matter of temperament and constitution, one in which the personal equation plays a great part. Undoubtedly an intellectual hobby is better by far than none at all, and many medical men of past times and of the present day have distinguished themselves in what may not inaptly be classed as unprofessional pursuits. Oliver Wendell Holmes is the most outstanding example in the past in this country and Weir Mitchell at the present time. There can be cited likewise the names of many medical men who have gained great fame in spheres of life other than in their chosen calling. This perhaps is somewhat of a digression, for many of these may have been cases of the "square peg in the round hole," who did not find their true metier in the practice of medicine.

The point that the writer wishes to insist upon is that the busy medical practitioner is the better for a hobby outside his profession. Although an intellectual hobby is good in that it implies in itself change of occupation and healthy exercise of the brain, an out-of-door hobby is even better, for this implies a certain amount of rest to the mental faculties combined with physical exercise in health-giving surroundings. The busy physician in the city is referred to in particular. In New York and possibly in a less degree in other American cities, the physician in large practice works as in a treadmill. Except for a yearly vacation he knows no rest, but grinds away all the day and not infrequently a considerable part of the night. The American city physician, unlike his British confrère, does not seem to know how to combine business with pleasure. Most of the London physicians do not work during the whole of the day, but very wisely devote a certain portion of it to amusement. Golf has been a veritable godsend to numerous hard-working medical men in England, for golf is a game that calls for brain power, ingenuity, skill and the exercise of the muscles in a manner suited to a man who is not in the best of training and above all is played in the healthiest environment. In short, golf provides mental and physical exercise of a high order under the most favorable conditions. There are other outdoor pursuits available to the city physician than golf, although it may be confidently stated that golf is of all, best suited to all sorts and conditions of medical men, by reason

of the fact that it can be indulged in with equal pleasure by the old and the young, provides gentle or vigorous exercise as the desire may be and is a healthy stimulus to the mind as well as to the body.

There is no need to labor the point that recreation of some kind is indicated for the busy physician, for he who runs may read. For the country practitioner intellectual recreation will be in place, for the city physician physical recreation, but for both some form of amusement or employment which will for a time take their thoughts away from the work by which they earn their living and which involves responsibility, worry and travail of spirit over those of any other profession or trade.

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### CORROSIVE SUBLIMATE

A Solution of Corrosive Sublimate, one of the crowned heads in the disinfectant family, is very sensitive to decomposition by carbonates, sulphates and silicates, found in solution in a large proportion of natural waters. In fact, a solution of corrosive sublimate in the proportion of one part to the 1,000 will be completely deprived of mercury in solution by probably a fourth of the natural waters used in the States, particularly those of the coast counties where lime and magnesia abound in the water, and it is common practice in hospitals and elsewhere to dissolve corrosive sublimate for antiseptic and disinfectant work, in tap, water, where all mercury will be changed into an insoluble condition and hence rendered useless. Again, corrosive sublimate in contact with albuminous matter, whether of vegetable or animal origin, combines with the albuminous matter and forms an albuminate of mercury, insoluble and of little or almost no antiseptic value. A very common mistake made in the use of corrosive sublimate is to use it in conjunction with soap. Many people who do not know better, and others who should know better, use corrosive sublimate for washing and cleansing purposes, and to make it a little bit better, as they think, they make a copious lather with soap, not knowing that soap completely decomposes and renders insoluble all the mercury in the solution.

NOTES.

## DIGEST OF CURRENT MEDICAL LITERATURE.

*The Significance of the Pulse Rate in the Diagnosis and Prognosis of Heart Affections.*—The diagnosis and the prognosis, and especially the prognosis of heart affections are stumbling blocks to not only the general practitioner, but even to the specialist. Since new views with regard to the action and diseases of the heart have been promulgated and to a great extent received with credence by perhaps the majority of authorities, no longer do cocksure opinions, with regard to the significance of certain symptoms and signs prevail. In fact the new school in Great Britain of students of the heart, if it may be so called, headed by Dr. Mackenzie, has revolutionized almost the entire conceptions respecting heart action and diseases and has completely upset long-cherished views as to cardiac physiology. The heart has now gained importance as an independent organ little inferior to that of the brain itself. Owing mainly to the teachings of Mackenzie, the diagnostic significance of the radial pulse is almost overshadowed by the results of the study of the venous pulse rendered possible by means of the polygraph, as this reveals the condition not only of the left ventricle, but of the other cavities also. It is chiefly perhaps in Great Britain that close study of the heart has been most earnestly pursued and with epoch making results. Poynton and Paine, some few years ago, demonstrated simple and malignant endocarditis and their relation to one another, myocarditis and pericarditis, all of rheumatic origin. They also proved the occurrence of rheumatic dilatation and the focal nature of the lesions. But, as said before, the new school headed by Mackenzie now dominates the field so far as original investigations into the heart's work and diseases are concerned.

Among what may be termed the old school of authorities on heart disease in England, Sir Clifford Allbutt, Regius Professor of Physics at the University of Cambridge, stands supreme. Thus when he a few weeks ago delivered an address before the Chelsea Clinical Society on the subject, the published edition was widely read. It was something of a bomb shell cast into the camp of the followers of the new school in that it was gloomy and pessimistic to a degree as regards the possibility of a correct prognosis in many if not most cases of heart affection. The able speaker disputed to a large extent the utility of symptoms to aid diagnosis and pointed out that in the gravest cases of myocardial lesions symptoms may be absent. However, the address is too large to discuss at length, so that the remarks on the significance of the pulse rate in the diagnosis and prognosis of heart disease will alone be dealt with. According to

Allbutt, although it has been asserted again and again that the profounder changes in the myocardium are betrayed by an irregular pulse, in truth as experience of cardiac diseases have widened we have learned that in the rhythm we have rarely any criterion of cardiac values. Impairment of certain tracts should, we think, be betrayed by altered rhythms, but we have no definite guide even here; we have learned by autopsy that even the tracts of Tawara may be seriously undermined by an infectious disease without derangement of rhythm, so likewise may the nervous masses in the coronary sulcus. There seems to be a general agreement that in the pulse we have no guide to myocardial damage, acute or chronic. Positive variations of pulse may mean little and under cover of normal rates, rhythms and pressures, decay may progress to the utmost. Still there are two variations of pulse which when present are ominous; these are a persistent rise of rate and the *pulsus alternans*. As for *pulsus alternans*, Wenekebach, Mackenzie and Lewis have reinforced the lesson that this change is, if not invariably, yet generally a herald of myocardial defect. However, as the sign is no common feature of such defect, but a rare one, it is as a clinical criterion inconstant. Still, though imperceptible to the finger, it may be revealed in a sphygmographic tracing. The only exception to its significance as a note of disease is an occasional appearance of it under the action of some poisons. In another way the pulse may signify decay of the myocardium, by a persistent change of rate, whether of acceleration or of retardation; here again we have not a constant but an inconstant criterion. We have seen that the tract of Tawara may be profoundly marred without perceptible effect on the pulse; and it is a common experience, that a normal rate of pulsation is consistent with profound depravation of the left myocardium at large. Yet Allbutt thinks that a permanent change of rate is ominous of failing heart. He does not insist on bradycardia or on tachycardia, but insists on the less emphasized sign of simple acceleration. Let the pulse of a certain man be known as habitually 70, at rest 65-70, and let this pulse rate be found to have become habitually 10 more on slight movements, rising to 100 and over; and let this change show no substantial alteration under prolonged rest, let it fall never below 80-85, then heart failure is in the offing. But in the opinion of Allbutt in such cases as with *pulsus alternans* we have no criterion; acceleration of rate in myocardial break-down is an inconstant phenomenon and in certain peripheral relaxations may appear without any myocardial disease. In short, Allbutt contends that the pulse rate is a very uncertain mode of diagnosing heart disease and of affording a re-

liable prognosis. Lewis, one of the leaders of the new school, joins issue sharply with Allbutt on many points and affirms that by the methods rendered possible by knowledge gained recently in most instances both a correct diagnosis and prognosis of heart affections can be made. He says, who cares for the authority of men to whom the differentiation of the simplest irregularities was unknown when they state "that in the pulse we have no guide to myocardial damage." According to Lewis the very statement is now false, and he goes on to say, Who cares whether in any instance a lesion can be found to account for an irregularity? The irregularity itself is evidence that the cardiac muscle has suffered functional change. It must be fairly analyzed, and this analysis can now be made. Heart block, extrasystolics auricular fibrillation, pulsus alternans, etc., can be identified with certainty and their pathological significance will soon be fully known if the analysis is made in all cases of irregularity.

Mackenzie, who is perhaps the greatest authority on the heart at the present time, points out that a rational prognosis must be based on a clear idea of the manner in which any given symptom is produced. Too many physicians found their prognosis on signs and symptoms which may have no dread significance at all. He holds that auscultation in the hands of a man who does not thoroughly know his work does more harm than good and is often an injustice to the patient, because a prognosis is based on an incorrect understanding of signs and symptoms. Allbutt seems to be of the opinion that the pulse is almost always an unreliable index of heart trouble, and one on which a prognosis should be seldom based, while Mackenzie and the new school contend that if the pulse rate be tested by a physician who is skilled in diagnosis according to the latest knowledge that as a rule, a reliable prognosis can be made. Certainly Mackenzie holds out the greatest hope for sufferers from heart disease, and the great work that he has accomplished in the field leads one to rely on this judgment. One lesson, however, may be learned from the opinions of all authorities, that to pronounce any definite views on the state of a person's heart requires a knowledge beyond that of the ordinary practitioner.

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*Demincralized Food and Cancer.*—In considering this question Horace Packard, M.D., in the *Boston Medical and Surgical Journal*, March 21, 1912, states that the normal food of the human family consists of cereals, vegetables, fruits, flesh foods and animal products (eggs, milk, cheese, butter). In the process of manufacture and cooking of some of these they undergo large losses of the mineral



elements and finally reach the human tissues practically demineralized. This is particularly true of the great staples, bread, potatoes and rice, while the flesh foods, consisting mainly of the muscle tissue of animals, afford but a meager supply of the food salts.

Modern organic chemistry and physiology teach that the mineral elements of plant life are absolutely necessary to the highest degree and type of animal life and the maintenance of health and vigor and resistance to disease. Plant life is the connecting link between the crude minerals and salts of the earth and animal life. In the chemistry of plant life carbon from the air and nitrogen and water from the soil are taken up and transformed into the classes of familiar food materials, which we term proteins, carbohydrates and fats. Coincident with the taking of these elements from the soil, many of the earth minerals and salts are also taken and elaborated and mixed more or less intimately with the albumins and carbohydrates. These salts contain the elements, phosphorus, calcium, potassium, sodium, iron, silica, magnesium, sulphur; probably others in infinitesimal quantities. We know that lime and phosphorus are absolutely essential to the growth and development of the bones and teeth and for their maintenance in adult life, and that the human body would be a shapeless mass of jelly without them; that potassium and phosphorus must be supplied for the muscles, and sodium chloride and iron for the blood.

Our knowledge of organic chemistry is so meager that we know little or nothing of the influence of the food salts upon the ultimate cells of the epithelium, endothelium, the nerves and nerve centers, connective tissue, structure of the organs of special sense, secretory glands, etc., but we do know that they could not exist or functionate without them. The salts of potassium, sodium, calcium, phosphorus, iron, silica, magnesium and sulphur, as abundantly found in commonly used vegetable food products, such as the cereals, potatoes, fruits, etc., are equally important with the proteins, starches, sugars and fats in the maintenance of vigorous, healthy animal life. Attention has been given in the past to the adjustment of nutrition in so far as it relates to proteins, carbohydrates and fats, but little thought to the rôle of the mineral food salts as elaborated by nature in the vegetable foods. Wheat flour consists of little more than wheat starch, while the salts of phosphorus, calcium, sodium, potassium, iron, magnesium and silica, in which wheat is particularly rich, are cast away. In localities isolated from the civilized world, bolted white flour is unknown, and these people do not have cancer at all, or to so slight a degree that it is a negligible quantity. Those people who inhabit tropical countries who subsist mostly on

vegetables and fruits consumed usually without cooking, do not have cancer. In the temperate zone, among the nations who have reached the highest type of civilization, cancer has become a scourge. If the theory of demineralization of staple foodstuffs as a causation of cancer be a tenable one, it fits in with the actual conditions in the civilized nations of the earth. The dietary for cancer patients in conformity with the food salts theory should be to exclude all white flour bread, and all articles into which white flour enters, from the diet, substituting for it bread made from whole wheat flour. Potatoes properly conserved in cooking are rich in the food salts which are located in the peripheral portion immediately beneath the skin. Therefore, baked potatoes are advised taken as follows: Discard the central or starchy portion and eat that nearest the skin, which is rich in mineral ingredients. Well cooked fresh vegetables and fresh ripe fruits, meats and fish in moderation, according to inclination. Eggs, cheese, milk and leguminous vegetables.

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*Pulmonary Tuberculosis.*—S. G. Bonney, of Denver, Colorado, presents a clinical résumé during the last year (*Am. Jour. Med. Sc.*, Nov., 1911) and finds it reasonable to assume that while much has been accomplished in the past few years in the education of the public, there is still something to be desired. Among different clinicians in varying localities divergent views are entertained according to individual experience; due significance must be attached to the number of persons sent away from home without positive evidence of tuberculosis, to the comparatively few early cases, the large proportion in moderately or far advanced stages and the frequency of incurable complications. There has been opportunity to note the disadvantages of routine tuberculin administration and the inevitable limitations of the sanatoriums unless in a properly coördinated relation to other important measures of treatment. The value of a properly selected climate must be recognized, the fundamental consideration being that of individual fitness. Notwithstanding a possible unhygienic environment and improper food and clothing, many incipients do recover at home and that despite unfavorable climate conditions; other cases somewhat more advanced may exhibit periods of improvement while confined in closed sanatoria. While consumptives may recover in unsuitable regions, they are more likely to do so in localities wisely selected with reference to individual needs. In some instances, prompt recourse to a suitable climate represents the determining factor; but this is only capable

of exerting its greatest influence when combined with a reasonable interpretation of modern hygiene and dietetic management. Many patients who, through financial distress, cannot have a supervisory regime, can yet secure improvement amidst favorable climatic surroundings. To those who must work for a living, sojourn in a suitable locality may offer the only possible means of an eventual restoration to health. An arrest having been secured, a continuous residence oftentimes precludes the relapse so common among those returning to their former home and occupations. "In the interest of the consumptive class it is to be hoped that an increasing appreciation of the value of climate for properly selected cases may be justly entertained."

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*Bromide Treatment of Epilepsy.*—According to the experience of Thomas W. Atkinson in *The Medical Fortnightly*, March, 1912, the bromide treatment of epilepsy does more harm than good and, therefore, ought to be denied the justification that "there is nothing better available." He further states that the treatment of epilepsy with solanine and verbenine with lecithine intercurrently is available to all, and is so far superior to the bromide therapy as to admit of no comparison. Solanine and verbenine are organic, vegetable alkaloids, with a low chemical potential, a normal pharmacological action and a fractional dosage. Lecithine is a normal preparation of nerve substance, with no pharmacological properties at all, but an organo-therapeutic action.

Under the bromide treatment his experience with epilepsy was the common experience of failure, and worse, so that he often deliberately withheld it as being the lesser evil. With solanine, verbenine and lecithine, he averaged a cure in 50 per cent. of his cases; by which is meant that at the end of a period varying from six months to a year he was able to discontinue the remedies entirely without a return of the seizures, while at the same time the patient's mental state was markedly cleared, and his general condition greatly improved. In all but a very small number of obstinate cases, the intervals between the fits were progressively lengthened and mentality correspondingly brightened.

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*Bursitis about the Knee.*—Just as there are gouty, tubercular, gonorrheal and so-called pyemic sections of joints, so we may meet with such lesions in separate bursa structures or tendon sheaths, whilst the joints themselves remain unaffected. Thus may

sometimes be explained the presence of certain obscure toxic blood conditions, of painful spots or swellings in situations apart from the more commonly named bursa and sheaths, but in which situations smaller or larger bursa do exist which otherwise rarely attract attention. A. E. Barker (*Brit. Med. Jour.*) finds that simple swellings of the knee, bursitis of the prepatellar space, tenosynovitis or synovitis of a bursa underlying a tendon, are essentially the same affection. In all there is distention by hypersecretion, due to subacute inflammation, the result of perhaps overuse or overstrain, or these lesions may be the seat of septic infection through the blood or from without, when the effect is pathologically the same for all.

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*Acetone in Inoperable Uterine Cancer.*—Gelharn's method is as follows: The cavity is curetted under anesthesia. The Ferguson speculum being introduced and the hips elevated, 5ss of acetone is poured into the uterus and allowed to remain 15-30 minutes. The acetone is then removed and the cavity is packed with gauze soaked in this substance, excess of which is sponged off the vaginal walls. Subsequent applications are made without anesthesia—five or six days after the operation, and after this two or three times a week. The acetone must not come in contact with the vulva; to avoid this there should be a preliminary anointing of the vagina and vulva with vaseline. A. Samuels (*N. Y. Med. Jnl.*) is well pleased with this method, by which he finds the pain to lessen, the discharge to diminish, the odor to be abolished, the hemorrhages abated and the patient generally improved.

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*Anal Operations.*—In operations for hemorrhoids, fissure, ulcer, fistula and other lesions where the wound is to be left open and drained, S. S. Gant has his patients prepared as follows: No laxatives or cathartics the night before; large enemata never to be given. But just before the patient is placed on the table he is given a small rectal injection of from four to six ounces of water and glycerine. This excites peristalsis and causes an evacuation; and one is by this means rarely annoyed by a discharge of feces during an operation, because they are not soft nor is there any retained water to come away.

## THERAPEUTIC PROGRESS

**Hydrochloric Acid.**—Solger (*Deutsche Medizin, Wochenschrift*, 1910, No. 33) reports obtaining surprisingly good results with hydrochloric acid in the treatment of gout. He himself had suffered for twelve years from uratic arthritis, and the attacks had increased in frequency and severity as time went on. He adopted Falkenstein's suggestion, and took increasing doses up to 60 drops of the acid in water, with the result that a rapid change for the better was brought about. By way of secondary effects diarrhea occurred at the beginning of the treatment, but this ceased in a short time without special treatment. Solger has remained free from attacks of gout for more than a year, and in the absence of other measures or alteration in his mode of living attributes his immunity solely to the action of the hydrochloric acid.

**Adalin.**—A derivative of urea, a white, odorless powder with slightly bitter taste, was used by Fleischmann as a hypnotic, as well as a sedative (*Medizinische Klinik*, 1910, No. 47). As a hypnotic it gave good results in the most varied conditions of insomnia due to over excitability of the central nervous organs, or to excitement, fear and worry, though he was not able with it to combat severe pain, cough or dyspnea. The doses for adults were 0.5 to 1.0 gram ( $7\frac{1}{2}$  to 15 grains) and by way of experiment 2.0 grams (30 grains), the larger dose prolonging the action without giving rise to secondary symptoms. He found that the treatment could be prolonged for 10 to 14 days, giving 1.0 gram (15 grains) daily without cumulative effects. As a hypnotic the remedy gave satisfactory results, but in testing its sedative action in rheumatic chorea, Graves disease and cardiac neurosis with tachycardia the author obtained no definite results.

**Cholesterin.**—It has been found that cholesterin plays the important part of a protective body against hemolytic substances in the human organism, rendering the toxins harmless, neutralizing hemotoxins and neurotoxins, taking an important part in the therapeutics of tetanus as well as anemia. J. Chevalier (*Bulletin General de Therapeutique*, 1910, No. 1) found its action well marked in cases in which iron and arsenic treatment failed, cholesterin producing a rapid improvement in the general condition. In enteritis due to intestinal infection Chevalier also obtained good results from the use of the remedy. In his experience the results are better when given by mouth than when administered subcutaneously. The adult dose is 1.0 to 2.0 grams (15 to 30 grains) daily.

Novoa (*Gaceta medica del Sur d'España*) reports satisfactory results in the use of cholesterin in neurasthenia and tuberculosis.

**Pyramidon.**—Pouchet (*Revue Internationale de Medecine*, 1910) found pyramidon an excellent remedy for toxic neuritis, headache in anemic subjects, and the pains of tabes. It also gives good service in migraine and hyperthermia. Pouchet recommends the following prescription:

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Pyramidon.....	1.0 gram (15 grains)
Syrup, aurant cort.....	25.0 C. Cm. ( $\frac{3}{4}$ ounce)
Aqua dist.....	75.0 C. Cm. (2½ ounces)

Sig. To be taken within 24 hours, a tablespoonful at a time.



Better results are said to be obtained in some cases by a combination of pyramidon with quinine hydrobromide. The author recommends a powder, 5 to 10 times a day, composed of 0.05 gram ( $\frac{3}{4}$  grain) pyramidon and 0.1 gram ( $1\frac{1}{2}$  grain) of quinine hydrobromide.

**Alcohol.**—Harris (*British Medical Journal*, 1910, No. 2580) reports on the treatment of trigeminal neuralgia with alcohol injections. The results obtained were so good that he regards the treatment as almost equal to that obtained by resecting the Gasserian ganglion. The neuralgia disappeared permanently, or if it recurred it could again be controlled by further injections of alcohol. The dose used was 1 to 1.5 C. Cm. of 90 per cent. alcohol.

Landete (*Revista de Medicina y Cirurgia*, 1910, April 14) injected 1 C. Cm. alcohol in a case of facial neuralgia, and completely cured the malady; or at any rate there was no relapse in a year.

**Picric Acid.**—This agent has been shown to be of value in a number of affections of the eye. It has great keratoplastic power, and is a powerful agent in restoring epithelial and cutaneous tissues. E. Fabri (*Bollettino dell' ospedale oftalmico della provincia de Rome*, 1909, July) has confirmed the statements made as to the value of picric acid in corneal burns caused by lime, as described by Fortunati. He obtained excellent results. The acid gives good results, too, in injuries to the cornea and conjunctiva caused by foreign bodies. The author applied it immediately after removal of the foreign body in the form of an ointment.

#### R

Acid picric.....	0.05 to 0.15 gram ( $\frac{3}{4}$ to $2\frac{1}{4}$ grains)
Cocain hydrochlorid.....	0.1 to 0.3 gram ( $1\frac{1}{2}$ to 5 grains)
Vaseline alba.....	12.0 grams (180 grains)

#### M

Healing followed within one to two days without scarring; even severe burns of the cornea extending through two thirds of the surface were healed.

**Ipecac to Abort Typhoid Fever.**—William L. Frazier (*Medical Record*, Nov. 4, 1911) presents histories of six cases of typhoid fever in which he made use of ipecac to abort the disease. The drug was given in capsules, coated with salol to prevent dissolving in the stomach and causing vomiting. The ipecac was given for six successive days, beginning with 30 grains, and decreasing 5 grains each day until the dose was 10 grains. The author believes that the disease was aborted by means of this treatment.

**Treatment of Grip.**—F. S. Meara, in the *Interstate Medical Journal*, Dec., 1911, includes under the term "grip" all those illnesses characterized by sudden onset, aching pains in the back or limbs, headache, high fever, prostration, some catarrhal symptoms, and followed by weakness and prostration. He is in the habit of giving acetanilid  $1\frac{1}{2}$  grains, combined with soda and  $\frac{1}{2}$  grain of caffeine. This is repeated every hour for four doses, then every two hours until 10 grains are taken, after this a dose every three hours. For catarrhal symptoms, inhalations of compound tincture of benzoin, a teaspoonful or two in a pitcher of hot water; or of an alcoholic solution of menthol, a few drops in hot water.

**Novaspirin.**—E. Hartmann (*Allgem. Wiener, Med. Ztg.*, No. 9, 1910) reports the use of novaspirin in articular and muscular rheumatism, but chiefly in influenza in about twenty cases, in which it exerted an antipyretic action and caused a disappearance of the headache and muscular pains. In a series of typical cases which were favorably influenced in doses of 1.0 gram (15 grains) 4 to 5 times daily, he noted even in persons with weak, sensitive digestive organs, untoward byeffects were never experienced. The drug can be given children suffering with colds or influenza without risk in doses of 0.5 gram (7½ grains) 3 to 4 times daily to those under twelve years and 1.0 gram (15 grains) 2 to 3 times daily to those above this age.

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**Codeonal**, a new remedy for nervousness and insomnia, receives the endorsement of Dr. C. Bachem, of Bonn (*Berl. Klin. Woch.* 1912, No. 6). The preparation known to commerce consists of 11.76 per cent. of codeinum diethylbarbituricum and 88.24 per cent. of sodium diethylbarbituricum. The codeonal tablets contain 0.02 per cent. of codeinum diethylbarbituricum and 0.15 per cent. of sodium diethylbarbituricum, sugar-coated to conceal the bitter taste and slightly flavored with oil of peppermint. The proportion of pure codein is 7.4 per cent.

Codeonal may be used wherever the administration of codein is indicated to allay nervous pain in the organs connected with the sympathetic, also to induce sleep in nervous insomnia or when interrupted by spells of coughing. Some of the undesirable effects accompanying the use of diethylbarbituric acid are diminished or suppressed when taken in the form of codeonal, in special, the fall in temperature. Recent researches of Jacobi and Roemer (*Archiv. f. experiment. Pathol. u. Pharmkol.* 1911, Vol. 66, p. 251) confirmed by Bachem and others, show that even small doses of sodium diethylbarbituricum, not enough to act as a narcotic, produce a typical lowering of the temperature, whereas codeonal causes an almost imperceptible fall, and is, therefore, preferable to other sleep inducing preparations in cases where a reduction of the temperature is to be avoided. One tablet is often sufficient as a sedative in sleeplessness induced by nervousness or coughing.

The value of this remedy in grip, menstrual disturbances, etc., remains to be demonstrated by clinical experience as also its efficacy as a preliminary to narcosis.

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**Alcohol and Spirit of Camphor as Surgical Dressings.**—B. Robinson, in the *New York Medical Journal*, April 6, 1912, recommends in the highest terms the use of alcohol and spirit of camphor as surgical dressings. He always uses one of these for wounds, bruises and sprains. For open wounds he considers them preferable in every way to corrosive sublimate or any other antiseptic solution. He suggests the use of alcoholic solutions for irrigating the abdominal cavity in cases of diffuse septic peritonitis; and uses spirit of camphor with water, one part to three, the alcohol diluted less and sometimes pure.

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**Camphor in Pneumonia.**—Wachter, in *Medizinische Klinik*, March 10, 1912, reports treating his pneumonia patients during the last three years with one or two daily subcutaneous injections of 3 or 5 C.C. of camphorated oil. He found it effectual in stimulating and strengthening the heart, while it seems to have a direct action on the lungs and soothes the brain. The crisis occurred in from one to nine days in his thirty cases. The pain was arrested and the agitation subsided; even delirious patients were quieted.

## AT YOUR LEISURE

### DELETA EST TITANIA

Our readers will have become more or less acquainted with the facts concerning the awful catastrophe to the passengers, crew and steamship *Titanic* in near mid ocean April 15th; facts probably as fully as they will ever be known to the world.

We have read of battles and pestilence, of fire and floods, earthquakes and tornadoes, but somehow these have not left us with the same sense of pity, of heartfelt sympathy for our fellow beings as has this horrible human disaster. The one ray of light connected with the affair is the heroism shown, especially by the passengers. We are prone to rail at the conditions of the present day; to declare this a commercial age and the people lacking in heroism and chivalry. But surely no helmeted knight of old ever displayed more heroism or consideration for those less able to care for themselves than did officers and passengers on the illfated *Titanic*. There was no class distinction, no arrogance because of social position or wealth. Here we find a man of enormous wealth standing by the humble emigrant, each stepping aside that women and children might be saved, knowing full well that the embrace given wife or child was the last. "Good-by, dearie, I'll see you later." Not here on this good old world, but somehow, sometime, somewhere in God's other world.

Life is sweet and the instinct of self preservation inherent in us all, but here man waves his adieus and kisses to the loved one who through his nobility, his manhood, command of self has found a place in the life boat and there is for that one hope; for himself, a speedy blotting out of that existence which promised so much. The husband pleads with the wife to embark, but no, "We have been man and wife for many years, we will go together, for life would be burdensome without you, dear." An embrace—but not good-by—a plunge and the journey begins.

And that brave ship upon this her maiden voyage, the sepulcher with her precious cargo goes to the bottom of the mighty sea, there to rest until time shall be no more.

Stephen Chambers in the New York *Times*, in a beautiful poem, "Out of the Deep," expresses with exquisite feeling the vessel's plunge thus:

"Now deeper sinks the sea-queen's mighty head.  
Her red heart, sea-choked, gushes scalding mist.  
Her body shudders, and her thousand eyes  
Are one by one eclipsed, 'till, with a sob,  
A submerged gulp whose horror stabs the night,  
Her crowded taffrail leaps toward the stars,  
As holding up her sacrifice to Heav'n. . . .  
Night draws her veil. The wind along the waves  
Chants 'Requiescat.'"

With bowed, uncovered heads we stand, hoping that though unheard from the surrounding space is being wafted the hero's good-night: the soldier's "Taps."

## PHILOSOPHY OF FRIENDSHIP

The expression true friendship is a misnomer. Friendship will not admit of a modification, it either is or it is not. A near friendship is an acquaintanceship of long duration, but there has been no opportunity to thoroughly test its merits which would render active the fundamentals of a friendship, if such exist, and yet as pity sometimes changes loves, so an acquaintanceship may ripen into friendship. Even there durability begets confidence and it is the apparent unconscious working of the test factors. The evolution of friendship is a slow process.

Friendship has at its command pity, sympathy, solace and comfort to be utilized when needed, and the supreme governing attribute is confidence. Long friendships seldom change to love. When friendship occupies a midway position between acquaintance and love, brevity is assured. The border line between friendship and love is not always well defined, and sometimes after many years of happiness many others of suffering follow because the dividing line has at last been discovered.

Love at first sight bears no relationship to friendship and is hardly worthy of the term infatuation, it is very much like beauty, only skin deep and likely to fade. Spontaneous friendship and love are uncertainties and may be compared to a guess and a logical conclusion, the former may be right, but so infrequently as to give it no standing in the affairs of life.

To cultivate a friendship is an admirable trait in the character of any person, but caution is always requisite. It becomes a faith and must be kept inviolate otherwise there will be flaws in the trust which will surely weaken and break the links of union. It takes two to make a friendship, and he who never seeks will never be sought. It is as unnatural for an individual to live in solitude as it is for a mother not to nourish her young.

Solitude is the prison cell of the heart. The person who is in solitude by his own right selection is usually mentally deformed or sick in mind. Hermits and misers who live within themselves are excentric and eccentric, this is one phase of insanity and such people the world don't need. Men incapable of a friendship and who would break a trust show an unworthiness in other avenues in life.

Often the world seems dreary to a man who does not value friendship, and yet such a mind is so narrow as to be incapable of recognizing the course of the world's dreariness. When in trouble the man without friends is to be pitied and more so when death comes. We are surely in need of friends and should preserve our friendships and seek more.

To sacrifice a friendship for a misunderstanding is a serious matter and the cause too trivial. The wrong should be righted. Men great and small have been misunderstood, and every nature possesses some element that circumstances may misrepresent. Self-examination is sometimes a good thing, and perhaps if we can upon sober reflection see ourselves as others see us we will be better able to condone the faults of others.

The rôle played by the third party is to be shunned as much as a

viper. To believe that your friend has wronged you by word or action on the authority of a scandal monger in sheep's clothing is a breach of trust on your part. It is unwise to hold a membership in a gossip or backcapping society or even be a guest at one of the sessions.

The persons who speak ill of others in your presence will do the same towards you in your absence. Alleged friends will tell of mean things said about you and cause you discomfort. A friend would not have done so. It may be considered a test of friendship, and you have seen the mask removed even though unrecognized at the time.

SAMUEL E. EARP, M.D.

### THE SEVEN AGES OF THE DRAMA

"All the world writes plays, and some—the best and brightest—merely written. They have their openings and their closings, and one play on its voyage makes many ports, its journey having seven stages. At first the idea seething and whirling in the author's brain, then the clicking typewriter, with keyboard and ribbon newly bought, pounding like mad unwillingly to end. And then the Agent, working like Trojan, with a hard luck story told to his friend with gold. Then an 'Angel' full of strange talks, and costumed like the rich, haughty with money, selfish and hard to 'touch,' seeking the bubble good open time, even on the 'Great White Way.' And then the Manager, in first-class theater, with good artists filled, with Stars 'on tap,' and cast of Broadway types, full of wise 'dope,' and modern 'why they fails,' and so he plays his part. The sixth stage shifts into the sage and overbearing public, with dinner pain within and grouch on side, its youthful thoughts, well kept, a world too old for situations strange, and its big active brain, turning again toward childish drama, jeers and censures at the new. Last scene of all, that ends this strange eventful history, is office waste basket, and monthly storehouse bills. Sans troop, sans route, sans proof, sans everything."—*The Rounder*.

### SERVED HIM RIGHT

"You must have called me late this morning, Sylvena. It was 12 o'clock when I reached the office. And I had an important appointment for 10 o'clock, too."

"Why, I called you at 7:30, John."

"Was the clock right?"

"Yes; I set it last night when you came home. You remember, I called downstairs when you came in and asked you what time it was. And you said 10:30. The clock in my room said 1:45, so I turned it back to agree with your watch, and, of course, I called you at the correct time this morning."—*Buffalo Express*.



## MISCELLANY

### PSYCHOLOGY OF TELEPHONE GIRLS

Professor Hugo Muensterberg, of Harvard, has started upon a series of psychological tests of men and women in different vocations—telephone operators, electric motormen, and employees in similar occupations. In each case he reproduces, so far as possible, the conditions of their work. The telephone companies of Boston dismiss, because of mental inefficiency, a large percentage of those who have gone through the telephone school. After six months but 25 per cent. of those who enter are still at work. That percentage, Professor Muensterberg believes, could be greatly changed in the interests both of the company and of the employees, if the tests existed by which unfit girls might be ruled out on the first day. Here is the reported result of one of his examinations, as given in the *New York Times*:

"The Professor brought all the beginners together in the exchange and set them before tables upon which were newspapers. In a given time the class were required to go down the first column of a page and cross out every 'a' that appeared. Then they did the same with the second and the third columns.

"The test showed that some of the girls had got 90 per cent. of the letters in the first column, fewer in the second, and so on. Others improved as they went on. Some were very bad, crossed out other letters than the 'a,' and sometimes skipped the 'a's.'"

The girls unfit for telephone work might be excellently fitted for some other employment, so in the case of each, further psychological tests might determine her best place.

The electric railways must engage thousands of motormen without being able to determine beforehand whether their mental equipment will lead to a chain of accidents or will insure faultless service. The tests have not yet been perfected. Enough has been done, however, to give the Professor confidence that, when carefully adjusted, the tests will permit selection at an early stage of those operators who have the requisite control of mind and muscle by which the avoidable accidents may be ruled out. With the telephone operators the tests refer to functions like memory, quickness of perception, and of reaction and so on. The motormen may have to be tested with respect to the endurance of their attention, their imagination, which foresees possible movements of pedestrians and carriages, and other mental dispositions.

In yet other groups of work all depends on the power to judge rapidly the relative importance of various factors in a complex situation. Quite dissimilar groups of experimental tests must be

devised. It is slow work. Psychological tests must themselves be tested by repeated trial. As this pioneer work proceeds, however, its utility will be amply recognized by the managers of business and industry.

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#### THE CIVILIZED PORTION OF THE HUMAN RACE

says George W. Crile, M.D., in the *Medical Sentinel*, April, 1912, is in a state of autocaptivity. The child has no desire to conform to the conventions, on the contrary, he naturally prefers to wear no clothes, no hose, to climb, to run, to play and be dirty—to fight and hide and hunt and fish and kill according to the design of his mind and body in the course of his evolution. It is such a commonplace fact that we scarcely realize the immense significance of the difficulty of the training of our children. For some twenty years the mother, the father, the brothers and sisters, friends, teachers, the community at large is engaged in the difficult task of training and taming a child to the conventions and the work society expects of him. His trainers were once just as untrained. Even after this long period of taming and training, this natural savage may in the end break out in many savage ways. The wild animals and primitive man have but little difficulty in bringing up their young in the ways designed by nature for them, but each generation of man must spend a prodigious amount of time in training its young for the obligations and duties of civilized life. Then in time they do the same for the generation to follow,—in other words, man really exists in a state of autocaptivity, and this is a fact of great importance.

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#### A BRET HARTE HERO

Another hero of the Pacific Slope in those large early days was Peg-leg Smith. He derived his nickname from a remarkable incident. While out in the plains with a wagon load of supplies, Smith—plain Smith at that time—was accidentally thrown from his seat, and the heavy wheel passed over his leg below the knee, crushing it so that amputation became necessary. There was no surgeon within hundreds of miles; but if amputation were not performed it was evident that mortification and death would soon result. In this emergency, Smith hacked out a rude saw from a butcher's knife which he had with him, built a fire and heated an iron bolt that he took from the wagon and then, with his hunting knife and his improvised saw, cut off his own leg. This done, he drew the flesh down over the wound, and seared with the hot iron to prevent bleeding. He recovered, procured a wooden leg, and lived to take part in many succeeding adventures.

## MEDICAL SPECIALISTS UNDER THE CÆSARS

An item in the issue of the *Lancet* for July 8th comments on the fact that medical specialism was not unknown even under the Roman Empire; for a recently discovered Latin inscription of the time of Tiberius bestows the title *medicus auricularius* on the imperial aurist. *Medici ocularii* are also mentioned in other Latin tests. In his legal digest, the celebrated jurist, Ulpian, says that "even those are to be considered physicians who promise to heal some particular ailment or part of the body, as the ear, fistulae, or the teeth." A surgeon was reckoned in the same category, and was known as *medicus chirurgus*.

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## LIKE PULLING TEETH

Observed H. S. Parsons, Secretary of the International School Farm League, to get sick people in the tenements to sit outdoors, even when a place is provided for them. Last winter the League had three winter gardens in operation, but the inertia of bad habits keeps the very people who need them from benefiting by them. Men and women whose neighbors on the other side of the park were paying thousands of dollars when out of sorts to go to sanatoria couldn't be induced to come to our gardens, where, with sleeping bags and blankets, they might have slumbered in the sunshine and breathed fresh air.

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## STERILIZING AN INDIAN VILLAGE

The Government recently "boiled" an Indian village in the Wind River reservation, Wyoming. Everything about the settlement, tepees, clothing, blankets, harness, etc., that could be boiled was thus treated by way of disinfection after smallpox; upward of 100 Indians were quarantined while they suffered a mild form of variola. There were no deaths. "Boiling" was resorted to because the Indians more readily understood this method of disinfection.

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The Bronx Hospital Dispensary was formally opened on Saturday, April 20th. Dr. A. Jacobi, who is one of the consultants of the Bronx Hospital and Dispensary, made the opening address. Speeches were also delivered by Dr. S. S. Goldwater, Superintendent of the Mt. Sinai Hospital, and Anthony J. Griffin, Senator of the district. The dispensary is now open for the treatment of patients. Dr. A. Goldman is president of the Bronx Hospital and Dispensary, Dr. William J. Robinson is president of the Medical Board, and Dr. Martin H. Rehling, secretary.

## ROOF GARDEN SCHOOLS IN NEW YORK CITY

The Ethical Culture Society will have an open air school for anemic and debilitated children on the roofs of its handsome buildings in Central Park West, between Sixty-third and Sixty-fourth streets, in the metropolis. Here, of course, is no new project. For perhaps a decade past boards of education in New York, Boston, Philadelphia, Chicago, and other large cities have established and maintained such classes, upon the sound assumption that the handicapped children of the taxpayer are as much entitled to education as any other. And nongovernmental institutions, such as the Ethical Culture Society is now emulating, have not been far behind municipal boards in these premises.

The type of an open air school for poor blooded, debilitated, nervous children, and for those suffering bone, joint and glandular manifestations of early tuberculosis, is well represented in the scheme of the society, which plans that the classes shall commence late in September and continue (except for the usual holidays) until June. The children are to have long days in the open air; ample experience demonstrates that their organisms will thus, in most cases, be restored to health. Simultaneously they will be instructed. In Germany and England, as well as among us in these United States, open air schools are proved to have increased the weight, improved the metabolism and most markedly to have stimulated physical and mental vigor.

Each child has a hearty lunch at noon, with broth or milk at the end of the day; not only does the outdoor life stimulate the appetite, but frequent supplies of nourishment are requisite. The children are to be protected from wind and weather by shed-like structures built on the roof. Heavy outside clothing is provided, consisting for each, of a woolen cap, sweater suit, wool lined overshoes, an extra sweater and "sitting out bag." The course of study is not to be so elaborate as that for children in good health. It will embrace the essentials only of English, arithmetic, geography and United States history, singing, gymnasium and practical manual work. The usual restrictions of class grouping and programme will not be permitted to hamper the progress of the individual. The school will be under the constant supervision of a physician. Each pupil will receive a weekly physical examination, and his progress, both mental and physical, will be regularly recorded.

## BOOK REVIEWS

**SEX HYGIENE FOR THE MALE AND WHAT TO SAY TO THE BOY.** By G. FRANK LYDSTON, M.D., Professor of the Surgical Diseases of the Genito-Urinary Organs and Syphilology, Medical Department, State University of Illinois, etc., etc. Illustrated with 24 engravings. The Riverton Press, Chicago, 1912.

This book of some 300 pages is intended for a popular treatise on sexual hygiene, and as such will be accepted as authoritative. It is true that such a book was badly needed, not only that the boy arriving at the age of puberty and older, but for young men, for a woeful ignorance not only prevails among youths upon questions of sexual hygiene, but wholly wrong and vicious beliefs prevail. It is a subject which has been studiously avoided by parents in the education of the boy, much to the serious disadvantage of the boy and lasting regret by the parent in very many instances, did he but know what harm might have been saved his son. Now that we are looking at this subject in a more enlightened manner it will not only be the duty of the parent to place in his son's hands such a book as this, but incumbent upon him to carefully read it himself and thus be enabled to intelligently discuss the subject with his son.

**FOOD FOR THE INVALID AND THE CONVALESCENT.** By WINIFRED STUART GIBBS, Dietitian for the New York Association for Improving the Condition of the Poor, etc., etc. The Macmillan Company, New York, 1912.

This is a small book intended for the instruction of persons of small incomes in the preparation of various foods, with other information useful to the housekeeper. It was prepared at the request of a number of New York physicians who gave helpful advice in the work. As the price is but 75 cents and the information given valuable it should meet with a large sale.

**ANNUAL REPORT OF THE SURGEON GENERAL OF THE PUBLIC HEALTH AND MARINE HOSPITAL SERVICE OF THE UNITED STATES FOR THE FISCAL YEAR 1911.** Government Printing Office, Washington, D. C., 1912.

There is a great variety of very valuable information in this work that will prove a source of help to the physician.

**TRANSACTIONS OF THE COLLEGE OF PHYSICIANS OF PHILADELPHIA.** Third Series, Volume Thirty-third, 1911.

A handsome volume of over 400 pages, giving not only information concerning the Association proper, but containing a number of valuable original articles on medical subjects, notably that on Reflections upon the Teaching of Therapeutics, based upon forty years' experience, by H. C. Wood, M.D., LL.D.

**PHYSIOLOGICAL STUDIES IN ANAPHYLAXIS.** By W. H. SCHULTZ. Government Printing Office, Washington, D. C., 1912.

This is a subject that should interest all physicians. It is here carefully and thoroughly treated.



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## ORIGINAL ARTICLES

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### THE MODERN ASPECT OF THE ETIOLOGY AND TREATMENT OF SYPHILIS\*

BY JOSEPH L. BOEHM, M.D.

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of Physicians and Surgeons, St. Louis, Mo.*

Syphilis is a very old disease, written about and studied by all schools of medicine since possibly the fifteenth century. The historical side of syphilis is still a question that presents some doubt as to the exact origin of the disease. Whether it is of Oriental or Occidental origin is of little value to us in this present consideration.

We know, however, that it has invaded all classes and races, affecting the plebeian, aristocrat and monarch alike with equal severity. The history of all countries, with the exception of some of the northern frigid races, which possibly escaped this disease for many years, shows them all to have been victims of scourges of syphilis. Wherever the white man planted his foot, be he soldier or sailor, there did he leave syphilis, which, sooner or later, raged like a flame, only to leave its indelible footprints in the shape of diseased bone, diseases of internal organs or else developing some form of insanity.

Syphilis signifies etymologically, with love. While it is most commonly acquired as a venereal disease in the sexual act, still it may also be acquired by the entirely innocent, who at the time of infection were not indulging in any of those things actuated by love or sexual impulses.

For many years syphilis and gonorrhea were considered as one and the same disease in origin. It was only in 1880, when Neisser, of Breslau, established the identity and morphology of the gono-

\*Read before the Jersey County Medical Society, Jerseyville, Ill., May 14, 1912.

coccus and originated its proper differential staining agent, that then and only then did the medical world positively know that syphilis and gonorrhea were separate and absolutely independent diseases.

We know that gonorrhea may also be acquired innocently. Syphilis is very commonly acquired innocently by means of kissing, drinking out of an infected cup and by trauma, such as is commonly found in our profession where a hang nail is infected during labor or puncture from a hypodermic needle, which had been used on some syphilitic patient.

Every person afflicted with active syphilis is a menace to his community and especially those with whom he comes in contact. Have you ever thought how fortunate most of us are in escaping infection of some kind or other when we smoke a cigar? I am told, in the cigar factories of Tampa and Cuba, the natives, mostly Spaniards, whom we know are to a large degree infected with syphilis, have a common habit and practice of using their saliva in rolling a cigar, especially in twisting the final end of the roll. Should some of these unclean Cubans and Spaniards have a mucous patch on the lips or in the mouth with active syphilitic poison, the very antiseptic properties of the tobacco may protect us from infection, when we bite off such an end. Recently in lay magazines the public have been warned against the use of public drinking cups in trains, etc. They should be warned against the use of public cigar cutters in our stores, for only too commonly can you see a man moisten his cigar end with saliva before he places it in the cutter. Now if he has some active virus in that saliva, it adheres to the cutter and the next customer using it gets some of such virus on his cigar.

This therefore brings us to the question of prophylaxis, which is a very broad one and can be considered from many standpoints. I sincerely doubt if venereal diseases will ever be completely eradicated from the world. As long as man lives, with his sexual impulse, instinct, and baser passions and attributes such as exist to-day just as they have from the time of the creation, will we have disease, and as long as we indulge in copulation will we have all the good and evil resulting therefrom.

#### PROPHYLAXIS OF VENEREAL DISEASES

This subject is extensively written of to-day; many of the writers are too radical in their views. If we wish to change the economic and social conditions of a community, we must first begin by a gradual development of conditions with the idea in mind that from time to time such gradual reforms instituted will bring us to the ultimate goal of our ambition.

We have societies for social hygiene and moral prophylaxis in most of our larger cities, which are supposed to offer a solution of present problems and conditions, resulting from an imperfect understanding of the sexual question. A recent editorial in one of our newspapers says, "Scientific knowledge will never take the place of moral instruction in guiding men and women to right living. Natural science is invaluable as a revelation of the laws of the material universe. It reveals the consequences of the violations of material laws and supplies safeguards against physical evils. But it never takes the place of moral judgment. Fundamentally, every problem of human life and conduct is a moral question and its decision is weighty with consequences to the individual. Life, health and success may depend on it. When the young are carefully instructed in all that concerns their physical life and functions, as they should be, they are ill equipped for the battle of life unless they have the spiritual comprehension of right and wrong, of good and evil, which makes for righteousness. The inner light is the only true guide to the pathway of well being and happiness in their largest sense. Civilization fails and society rots at the core when fundamental moral truths (the things of the spirit) are thrown aside for the things of the material world."

Brieux, one of the foremost of modern French dramatists, a physician of the soul as well as the body and a philosopher, has most forcibly taught in his drama "Les Aviaires" (Damaged Goods) the solution of some of the things related to the question of social and moral prophylaxis. It is well worth the while of every physician to advise intelligent laymen to read this drama, which is translated into English and published by Brentano. This story shows that knowledge might prevent and that ignorance on the part of laymen in regard to sexual diseases, especially syphilis, will produce domestic ruin, human tragedy, etc. A young man with recently acquired syphilis is about to marry a chaste young lady of high social standing. He disregards the advice of his physician and unites himself in wedlock.

The despair and suffering which follows, both physically and spiritually, is depicted in this drama, so true to every day life, as a physician sees it, that its moral lesson is driven home to every thinking man and woman.

The father-in-law calls on the physician and is told by him that if he had been as careful in inquiring as to the health of his future son-in-law as he had about the securities and property, this calamity might have been avoided.

Prematrimonial medical examination of both contracting parties

about to marry is not only desirable to-day, but essential. There is much to be done along legislative lines in relation to this question.

#### WHAT IS SYPHILIS?

A comprehensive definition of this disease that I have used in medical lectures is as follows: Syphilis is a chronic contagious disease, characterized by inflammatory and neoplastic lesions, affecting every organ and tissue of the body, indefinite in duration and caused by the *spirocheta pallida*.

It is surprising that with the voluminous literature on this disease, especially during the past five years, many practitioners of medicine still cling to obsolete and antiquated theories while treating the disease. Therefore it is my sincere opinion that too much cannot be written or spoken about this universally prevalent disease, especially when considering all the modern discoveries appertaining to it. Any physician who attended a medical college, only as recently as ten years back, must now abandon all the theories that he then learned about syphilis, if he considers himself progressive and modern.

Syphilis is possibly treated by most physicians in two ways, either symptomatically or according to antiquated descriptions and prescriptions as found in text-books. A fact of paramount importance must be recognized, that we must not treat the disease per se, but that each patient is a distinct entity, notwithstanding he has syphilis, and we should treat the patient and not the disease. Syphilis is not an apyretic disease, i.e., it has a symptom of fever in many cases during the secondary stage, different from malaria or typhoid and at times somewhat resembling the fevers accompanying the eruptive diseases of childhood.

Syphilis is spirochetal septicemia, and should be regarded as other forms of septicemia, where there follows as sequelae lesions of the heart, blood vessels and viscera due to toxemia from microorganisms. We all know that syphilis is a common etiological factor in arteriosclerosis; text-books do not mention the fact that step by step with this sclerosis of the arterial tree is a complementary condition of the venous system, which we may style venosclerosis. This fact has been firmly impressed on me for the past two years, since I have been doing a large amount of the intravenous injection of salvarsan, when occasionally it is necessary to incise the tissues lying above a vein; in this manner dissection of veins from their fascial sheaths enabled me to make some observations. I have concluded that venosclerosis is a distinct pathological entity in syphilis.

There is no doubt that the obstinacy of healing and the persist-

ence of many cases in old men and women of varicose ulcers is due to this very cause of venous degeneration, which hitherto was not entirely understood.

It is tradition that there must first be a chancre before syphilis can develop. This is true in by far the vast number of cases, but exception to this is by no means rare. The French have reported cases, especially Jullien, in which syphilis developed and no chancre was found after the most painstaking examination. Where a chancre is apparently absent there must be some primary port of entry of the syphilitic virus into the body, even if such a lesion may be only the smallest abrasion, which may have healed spontaneously without leaving any of the sclerosis or scar tissue such as is found in a typical chancre. Such a minute abrasion may occur intra-urethral and be either a simple urethritis or else mixed with gonococcal infection. I have seen cases of gonorrhea run a typical course and in a few weeks present undisputed evidence of secondary syphilis, showing that simultaneously with the gonococcus there was a spirochetal infection. Along this line is the case of a physician, himself skilled in syphilology, whom I had observed for several years, having seen him since the time of his infection, caused by puncturing his thumb with a needle after administering an intramuscular injection of mercury to one of his patients.

His patient had a most malignant syphilis, and died in two years after infection with cerebral degeneration. The physician who was infected never presented a chancre, at the site of trauma with the needle, but merely a very small puncture scar, which required a magnifying glass to outline same. While he did not develop a typical chancre, nevertheless he had a severe periostitis of the distal phalanges of the thumb, which caused him much pain for several weeks.

In four weeks time he presented all the typical signs of secondary syphilis. Now this is a case in which there was apparently no demonstrable primary lesion, which was typically chancre.

I have treated a large number of physicians and surgeons with syphilis, but not all of them acquired the disease traumatically. When a physician does acquire a traumatic infection, it is, as a rule, more rapid and virulent than when an infection is obtained through a sexual manner, in which a chancre appears as the primary lesion.

The irritating influences and inflammatory action of the spirocheta in the chancre produce cell proliferation and vascular changes in loco. This requires time, and while this is taking place, it is my impression that certain toxins and endotoxins, proliferated from the spirocheta in the chancre, are being slowly absorbed into the sys-



tem; hence there is as it were somewhat of a habituation of the body to the invasion in the future of large numbers of spirochete when they proliferate and migrate from the chancre, manifested by the appearance of secondary lesions in distant parts of the body.

On the other hand, when traumatic infection occurs, there is an immediate infection of the lymphatics and blood vessels in the proximity of the trauma. Spirochete enter at once into such lymph and blood streams and are deposited in various parts of the body quickly, without any previous defense or habituation on the part of the system as previously outlined.

The evolution of the modern conception of the etiology and treatment of syphilis began in 1903, when Metchnikoff and Roux experimentally inoculated the higher apes with syphilis. The gates were then opened for laboratory workers to further study the disease, and research work of an active character followed throughout the medical world. In 1905 Fritz Schaudinn and Erich Hoffmann announced that they had discovered in the aspirated fluid of an enlarged syphilitic gland a pale spiral organism, differing from any of the spirochete, known to that time, and hence called it the *spirocheta pallida*, later the *treponema pallidum*.

It has been conclusively proven that this pale spirocheta is found only in syphilitic lesions and in no other disease. However, there are other forms of spirocheta, such as the *refringens*, which may also be found in lesions on the genital organs, but this is not the syphilitic spirocheta, the former being larger and coarser and less curved than the *spirocheta pallida*.

Guinea pigs, rabbits and monkeys have been repeatedly inoculated with the *spirocheta pallida*, producing typical lesions of syphilis such as is found in human beings. It was early established that the rabbit's testicle was especially adapted to the experimental work with spirochete, producing typical gummata of the testes, which fact was utilized extensively in experimental therapeutics, especially in the early work of Ehrlich with his salvarsan. It was, however, not established in the early days of this new era in syphilis that cultures of a pure strain of spirochete could be obtained. Attempts were made by many bacteriologists to grow this microorganism on culture media, but none was successful.

In Germany in 1910 spirochete were grown, but these proved to be identical with the *spirocheta dentium*, which is found in the tartar of teeth. Noguchi has, however, accomplished the remarkable result of artificially cultivating *spirocheta pallida* and proving morphologically that his claims are correct. He is now showing his splendid work at the Rockefeller Institute in New York City, and

has thereby placed himself in the foremost rank of modern syphilologists. He cultivates the spirocheta from rabbit's testes and directly from the chancre of man. He uses a fluid medium for the growth of the organism from the rabbit's testis under anerobic conditions. For growing the spirocheta from human tissue he uses a solid medium of ascitic fluid and weakly alkaline agar. He states that the spirocheta do not produce an odor, and that he successfully produced typical orchitis in monkeys from both the rabbit and human cultures, giving a positive Wassermann reaction in the monkeys. The classic paper of Noguchi, which is a résumé of his epoch-making work with the spirochete, appears in the Journal of the American Medical Assn., April 20, 1912 (Vol. 58, No. 16).

It is claimed that the spirocheta pallida loses its characteristic movements when kept in preparation for five to six hours, under aerobic conditions. When kept under anerobic conditions, their viability may be prolonged for two days. After death of the host, motility in the tissues soon ceases. It was formerly taught that when a person with active syphilis died, there remained danger of infection with syphilis for some time afterwards and great care was exercised by autopsy physicians with this belief in mind. However, this seems now to be disproven. A temperature of 45 degrees C. immobilizes the spirochete. Metchnikoff and Roux claim a temperature of 51 degrees C. completely destroys the virus of syphilis. Therefore we may apply direct heat to a chancre, by such thermic agent as therapeutic lamps of 500 candle power, and by its thermic cauterization will not be surprised if great improvement in a chancre does not follow such treatment.

In my clinic as far back as ten years ago, we applied heat to chancres from several combined ordinary 16 candle power lamps and often observed improvement after such exposure. Just why this occurred we were then unable to explain, but since these observations have been made in the biology of the spirocheta, we can readily understand such results.

Different individuals suffer from syphilitic infection with varying degrees of intensity, just as they do from typhoid, smallpox or any other infectious disease. Hence there may be a mild or a malignant syphilitic infection, depending on the powers of resistance of the patient or the virulence of the toxin. Some cases may have ultimately progressed toward a cure even in the ancient days when the vegetable and herb treatment predominated.

It is inconceivable to-day that there is any natural immunity toward syphilis, because wherever it has been introduced into virgin soil by the migration of sailors, etc., epidemics as a rule quickly

followed. Within the memory of some of us, in our student days, we were taught that animals were immune to syphilis; to-day we know differently because we have the dourine of the horse, the experimental infections in the rabbit and monkeys, which was the pioneer foundation for the development of our modern knowledge of this disease, although some of the lower animals as yet have not been experimentally inoculated with the disease.

By a superinfection in syphilis is meant a new infection of syphilis before an individual has recovered from his first attack, that is, while the disease may be latent in his system without any demonstrable evidence. This is still a mooted question in which there is some disagreement of opinion. A superinfection must be essentially a lesion histologically similar to a chancre and must have the spirocheta present in addition to secondary symptoms which may be anticipated to follow. It seems to be logical that at least secondary syphilis is insusceptible to a further inoculation with the virus. A primary reinfection with syphilis or a second manifestation of the disease in one who recovered entirely from a previous attack seems possible.

Such a condition of reinfection can exist and be proven only after a repeated Wassermann reaction is shown: the reinfection must be confirmed by establishing the presence of the spirocheta, a positive Wassermann and all the complex symptoms, found in syphilis. Therefore so-called "immunity" to syphilis only exists while the virus of spirochete is still present. To speak of immunity in this sense is a misnomer. What really exists is an insusceptibility to superinfection. Von Pirquet coined the term "anergie" as applying to this condition.

We will digress from the main subject for a few moments in order that we will not become confused on this question of immunity, etymologically. Von Behring described an increased insusceptibility in animals to diphtheria and tetanus toxins when they were immunized so that their blood contained antitoxin: this increased susceptibility he termed hypersusceptibility. Another term, anaphylaxis, must be understood, which is the reverse of prophylaxis, and signifies that an animal becomes increasingly susceptible instead of immune.

Von Pirquet, in 1905 coined the term allergy, signifying altered reaction. When a foreign substance such as serum is introduced into the body there is a change in the reactive powers. When reinoculation is performed, allergy refers to the reaction that may be observed now, entirely different to what occurred in a previous inoculation.

A person will be successfully vaccinated and shortly afterward revaccination on this same individual will not take as he is insusceptible to it; this is termed allergic. In syphilis the susceptibility to a second infection in the primary stage is affected by allergic. Complete insusceptibility is, therefore, anergic. In secondary syphilis anergy exists and reinoculation produces no result; in the tertiary stage allergy may exist, but anergy may be absent and a person may then react locally to a reinoculation.

Allergy is increased in the tertiary stage, therefore differing from the primary stage; a reinoculation may be termed anaphylaxis. This would not be properly classed as a reintroduction of the disease or a superinfection. This allergic reaction is similar to what occurs when a tuberculous patient is inoculated with tuberculin.

McIntosh says, "It is suggested that a secondary outbreak in syphilis is due to the fact that the spirochete become immune to the antibodies produced in the primary stage and thus break out without restraint. In response to this outbreak, there is a greater antibody production and the protective mechanism destroys the greater part of the spirochetes in the succeeding years. A tertiary lesion is the result of a local derangement of the balance between the antibodies and the spirochete. A similar explanation accounts for the occurrence of relapses."

The question of antibodies in syphilis will no doubt be better investigated since Noguchi has made the cultivation of the spirochete *in vitro* possible. The work of Noguchi is the highest attainment of modern bacteriology and marks a new era and a distinct epoch in the development of syphilology (Jour. Amer. Med. Assn., Vol. 58, April 20, 1912). He made from pure cultures of several strains of the spirocheta pallida an extract by grinding or triturating these cultures with saline solution and the addition of some antiseptic, as phenol, as a preservative and then heated this mixture to 60 degrees C. for half an hour; he calls this finished product "Luetin."

When luetin is injected intradermically and not hypodermically into human beings, as well as rabbits, where he first tried this test, he finds that a marked cutaneous reaction of an inflammatory nature occurs leading to pustulation at times. A control test is used, just as we make our control test in using the Von Pirquet test. In such a control mixture for the luetin test, there is none of the spirochetal culture but merely those fluids which are used as vehicles; this control is also injected into the opposite limb intradermically. The luetin reaction of Noguchi apparently is a specific one, and will find its most useful sphere in those cases of syphilis, especially latent ones, where the Wassermann reaction is indecisive and there

is no evidence of clinical manifestations of the disease. In other words, where the Wassermann reaction ends the luetin test bids fair to begin. Reports to date show, as Noguchi says, that it is positive in all tertiary and hereditary cases and absent in primary and untreated secondary syphilis: In a number of dermatological conditions other than syphilis it is not present.

In discussing the relative severity of infection between sexually acquired and traumatic syphilis, I stated that in my opinion there is a toxemia and an endotoxemia caused by the spirochetal toxins, possibly which are absorbed by both the blood and lymphatic vessels, directly from the locus of trauma. Whether the malignant influence of syphilis in its destructive action on the tissues is caused by the toxins, the spirocheta per se, or both acting in combination is of little importance. However, we know that connective tissue is as a rule involved with equal severity as the muscular and lymphatic structures. We will then allude to this destructive action as the toxic effect of syphilis, which affects the cells of all tissues, especially nerve tissue. This latter result is known as parasyphilis or metasyphilis. These terms were introduced by Fournier, who defines parasyphilis as follows, "A series of morbid manifestations which, although they have nothing syphilitic in nature, are none the less syphilitic in origin, in that they are born of syphilis and produced by its existence and in all probability would not be produced without it." Therefore parasyphilis is not a result directly from the spirocheta, but rather from the toxemia of syphilis or the toxalbumins arising from the diseased tissues. Parasyphilis exists most commonly in such functional disorders as neurasthenia and hysteria, in organic lesions of sclerosis and atrophy, as tabes, general paralysis and arteriosclerosis. Such diseases and other spinal and cerebral diseases in a large percentage of cases show the Wassermann reaction to be positive, especially in dementia paralytica.

*(To be continued)*

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## THE SURGICAL TREATMENT OF ACUTE GONORRHEAL EPIDIDYMITIS

BY LEON T. ASHCRAFT, M.D., Philadelphia

Epididymitis is a frequent complication of acute gonorrheal urethritis, occurring in about fifteen per cent. of all cases. It is essential to recall that the discharge containing gonococci reaches the epididymis from the posterior urethra through the vas deferens. Many claim that injections and irrigations are largely responsible



for this condition. Such, however, is untrue. To be sure, too vigorous local treatment to an acutely inflamed urethra may provoke an attack, but it is the absence of intelligent local treatment which causes most cases. For a number of years it has been my good fortune to be in charge of one of the largest genitourinary clinics in this city, as well as having an opportunity to observe many similar cases in other clinics with which I am associated, and the foregoing statement is based upon experience and not mere conjecture. It is our custom to ask a patient with epididymitis, "Have you been using or receiving injections or irrigations?" and in nearly every instance we have received a negative reply. About five years ago, with a view of obtaining the value of varied remedies in acute urethritis, I experimented with one hundred patients, treating twenty-five with irrigations, twenty-five with injections, a similar number with internal remedies, and to the remainder I gave a placebo. In no instance did epididymitis develop where irrigations and injections were administered by myself or my assistants. However, where only internal medicinal treatment or a placebo was given a number of cases developed, thus proving that by omitting the irrigations, an opportunity was given the gonococci to extend beyond the cut-off muscle, invade the posterior urethra, producing epididymitis and very frequently inflammation of the other genitourinary organs as well.

Immediately following the onset of the disease, the appearance of the side affected suggests abscess. Occasionally I have seen bilateral epididymitis, one side quickly following an involvement of the other, but rarely are both sides infected simultaneously. The pain is excruciating, marked constitutional symptoms are present, while the temperature frequently reaches 104 degrees F., the pulse one hundred and twenty and the patient presents many of the evidences of acute sepsis. The urethral discharge is either markedly diminished or entirely suppressed, being confined to the tail of the epididymis. It is hard to appreciate this until one opens the tunica vaginalis, exposes the epididymis and incises it. Pathologically many miliary abscesses are seen, the vas is swollen, tender and in many instances nodular. The examining finger will often detect an engorgement of the prostate, as well as an involvement of one or both seminal vesicles. Such is not especially remarkable, since acute epididymitis is often only a part of a pathologic process by which we now recognize a pelvic abscess. Very often we are called upon not only to drain the epididymis, but the prostate and seminal vesicles as well.

Pus confined within the epididymis acts in several ways. It may infect the testicle and rupture into the tunica vaginalis, result in

miliary abscesses or in a majority of cases subside under local treatment and internal medication, leaving nodules in the tail of the epididymis.

When both epididymes are involved, sterility results. Hydrocele frequently develops and occasionally tubercular epididymitis follows. Some dispute this, but I have seen the gonococci and tubercle bacilli lying side by side. The resisting power of the epididymis is so lowered by repeated gonococcic invasion that it is powerless to resist the inroad of the tubercle bacillus.

Inasmuch as this paper is intended to emphasize the necessity for surgical interference, I will not discuss in detail the medicinal treatment except to say that I always insist upon the patient going to bed. Antiphlogistine is applied to the scrotum and the parts properly supported. Aconite and pulsatilla are very useful remedies. All local urethral treatment is, of course, contraindicated. Although the process usually terminates within ten days, yet in many instances the epididymis shows infiltrated areas and is the seat of persistent neuralgias.

The operation I make differs from that of Hagner, who first suggested surgical treatment for epididymitis. The patient is anesthetized. The scrotum having been shaven, the involved area is painted with a 2 per cent. alcoholic solution of iodine. An incision is made directly over the scrotum, exposing the tunica vaginalis. Another incision about one inch long is then made into that part of the tunica which covers the lower part of the testicle and epididymis. This exposes the epididymis. In many instances minute abscesses almost ready to break down are seen. Gauze is then tucked around the testicle and inside the tunica vaginalis, after which these abscesses are punctured. Occasionally I have made a free incision into the epididymis. Until one has made this operation, it is impossible to realize the number of miliary abscesses that exist or the extent of engorgement of the epididymis. When seen, the necessity for operating is at once apparent. Following incision, and expression of the pus, the testicle and epididymis is returned within the tunica vaginalis. The cavity is then packed with iodoform gauze and plain gauze dressings are applied, the scrotum strapped with adhesive, the parts being supported by a snug perineal binder and the patient is returned to bed. The gauze wicks are removed daily and the wound repacked. In four or five days the patient is perfectly well. The fever disappears, the pulse drops, constitutional symptoms clear up and the discharge is either very slight or entirely absent. Nodules are rarely met with following operation.

I have operated on a number of cases with most gratifying re-

sults. In many instances the seminal discharge examined several months later showed active spermatozoa. This method, in addition to relieving the patient's distress, insures the fertility of the male organs.

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## THE INTRAVENOUS TREATMENT OF TUBERCULOSIS

BY FRANK C. WILSON, M.D.

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The cause of tuberculosis was clearly demonstrated by Dr. Koch to be due to a minute tubercle bacillus, derived from some preceding case and introduced into the system most frequently through the air respired. The little dusty particles floating about the room, to each one of which there may be adhering numerous bacilli, when drawn into the air passages may be deposited in the bronchial tubes or even in the air cells. Having once effected a lodgment, the colony at once entrenches itself, drawing nourishment from the surrounding tissues, and rapidly multiplies, giving out toxic material resulting from the growth of the individual germs. This poisons the system, producing more or less fever, cough and expectoration, and, unless checked by prompt and vigorous treatment, will soon claim the patient as a victim of the great White Plague.

What can be done to meet this emergency? Nothing is more applicable to this than the old adage, viz.: "An ounce of prevention is worth a pound of cure." As the cause of the disease is admittedly the introduction into the system of the tubercle bacillus germ—which has been derived from the expectoration of some previous case—the most important preventive measure is to thoroughly destroy every particle of expectoration or discharge from every case of tuberculosis. This is, of course, very difficult to do effectively, but with the intelligent cooperation of the patient, friends, and authorities, it can be accomplished, and an indelible impress made upon the mortality of the Great White Plague. If this could be carried out with absolute perfection in every case, the complete extinction of the deadly disease could be secured within a short time. As hundreds and thousands of persons all over the world have already been exposed to infection from cases already developed, the question naturally arises, What can be done for these? When we realize that many millions of these deadly germs are found in the expectoration given off every twenty-four

hours from every well developed case of tuberculosis, enough to inoculate every man, woman and child in a large city, we wonder that any one escapes infection. If, however, the opportunity is afforded for the detection of the infection in its very incipency, there will be no difficulty in preventing its further progress, and in effecting a prompt cure. As the cause of tuberculosis is admitted to be the tubercle bacillus, if we can in any way remove the cause, we can certainly cure the disease. It is contended by many observers that this end cannot be secured except through the efforts of the defensive cells provided by the system, the white blood cells, the leucocytes. Whenever a colony of germs is implanted in the tissues, most frequently the upper part of the lung, the defensive cells, warned through the nervous system of the dangerous invasion, flock to that point in large numbers and at once give battle in the effort to exterminate the colony. If there are only a very few germs present and the system is vigorous and healthy, this effort will succeed. Too often, however, the colony may multiply far too rapidly, and more and more tissue is occupied, while the toxins poison more profoundly the system and exhaust the efforts of the defensive cells, until finally the poor victim succumbs to the dread disease.

Can we not reach the colony of germs by an efficient germicide that will destroy the vitality of the bacillus and in this way rid the system of its destructive influence? It has always been contended that this could not be done without injuring the other tissues. I am sure that this can be done without the slightest inconvenience to the other elements, by taking an artificial fluid so closely resembling in composition the natural blood serum, and yet having incorporated with it an efficient germicide, such as chlorine, with which may also be associated ozone. This may be warmed to a temperature of 110 or 112 degrees, and introduced into a large vein to the extent of a pint, without pain or protest, or any injury to the other elements of the circulation. This will be carried by the venous current, first to the right side of the heart, and then directly through the pulmonary circulation, where it will destroy the vitality of every bacillus with which it meets. Dr. Sternberg asserts that chlorine will kill the tubercle bacillus in a solution of 1 to 5000, and its growth will be inhibited by a solution of the strength of 1 to 20,000.

The only question is, whether the solution reaches the colony before the efforts of the defensive cells have surrounded it by an impervious wall of exudative material in their aim to prevent the colony from appropriating nutritive material from the surrounding

tissues, and at the same time preventing the toxic emanations from the germs from penetrating the system.

If the infusion is given in the early incipency, before the protective wall is complete, one simple infusion may succeed in destroying every bacillus, and the system may be rid of the disease completely. This I have seen accomplished in numbers of instances where the history revealed a known exposure to tubercular infection, resulting in every evidence of active tuberculosis, such as loss of weight and appetite, and with the existence of fever, and severe cough, with expectoration of a thick mucopurulent material, teeming with tubercle bacilli, as revealed by the microscope. I have seen all of these symptoms disappear following an infusion; and, as a proof that the system was entirely cleared of the germs, I have seen the case exposed to whooping-cough four months subsequently, attacked by it, and go through a course of six weeks, as did his children, and yet fail to have the tuberculosis lighted up. I cannot conceive of the possibility of any germs remaining in the system without being lighted up again, and the case remain free from tuberculosis for four years. I have seen thirty or more cases of incipient, unmistakable tuberculosis, where a single infusion has cleared up all evidence of the disease, and remained clear, some of them as long as ten years. The clinical evidence in these cases convinces me clearly that the germs can be effectively reached by the intravenous use of an effective germicide, if used in the early stages, when the colony occupies only a small area of the lung, say not larger than a quarter or a half dollar, clearly made out by percussion. Even in the moderately advanced cases, if, after the first infusion, which may cause a disappearance of the symptoms for a time and after a few weeks they again return, the patient will follow up the first by a second infusion, a complete cure may often result.

Seven years ago I was consulted by a young Jewish girl, who had contracted tuberculosis from a brother-in-law, who afterwards died of the disease in Palestine. She had developed spinal disease. When I examined her chest she had a well marked cavity in the lung. I gave her an intravenous infusion and exacted from her a promise that she would return to me for another infusion whenever the improvement resulting from each infusion ceased, and she began to lose ground. Within a year she came back to me for three other infusions, and since then she has remained up to this time—now seven years—practically well, except for the deformity due to the disease of the spine, which gives no further trouble. No doubt the persistent use of the germicidal fluid so permeated the osseous tis-



sues, softened and diseased by the tuberculosis, that it destroyed the germs there, just as it did in the lungs. No doubt another benefit resulting from its use was to better the source of supply of the leucocytes, which is generally believed to be the bone marrow. Nature was enabled in this way to thoroughly eradicate the disease of the spine. This patient is now well and has been for seven years, though she was, when I first took charge of her, a most unpromising case. But for her implicit faith she would have listened to the advice of her officious friends, and after each infusion, when it would seem to fail in continuing to benefit her, and she would begin to lose ground, she would be met with the taunt—"I told you it would do you no good." Her faith compelled her to persist in what she believed would cure her, and she was at last rewarded by a complete recovery. The intravenous method of treating the disease is the most direct and satisfactory method to which I have resorted. By using as a vehicle a fluid of so nearly the same composition in its saline constituents as to be practically isotonic with the natural blood serum, it can be infused into one of the large superficial veins, and will be received into the circulation to the extent of 8 to 16 oz. without any protest or pain. With this fluid we can incorporate any one of a number of effective germicidal agents, such as formalin, oxychlorin, the hypochlorites, and even alphozone, merely graduating the strength so as to be barely sufficient to be destructive to the vitality of the germ, without in any way injuring the other tissues of the body or circulation.

I have been much interested recently in the experiments of Wassermann in his efforts to destroy the vitality of the cancer cells by the intravenous injection of a solution of an aniline staining fluid. I see no reason why we could not apply the same principle to the destruction of the tubercle bacillus within the system, without waiting for the slow process by which Nature seeks to secure the same result—fresh air, eggs and milk, and which so often fails. The more rapid and direct intravenous method of attacking the admitted cause of the disease need not in any way interfere with the fresh air and feeding, which may be carried out more beneficially at the same time than without it. By incorporating in a tablet, in definite proportions, the exact saline ingredients of the natural blood serum, we can, when this tablet is dissolved in sterile water, reproduce the exact counterpart of the natural blood serum, which we may use as a vehicle for introducing a germicidal agent, such as chlorine, or eosin, or tellurin, or fuchsin, into the venous current without protest or injury to the corpuscular elements of the circulation or the tissues. The strength of the germicide must be nicely

graduated so as to be just sufficient to destroy the vitality of the germ without injury to the tissues. Careful experimentation will determine this definitely, and I am certain that in this we will have the most definite and sure method of dealing with this deadly germ. which already decimates the human race and, unless successfully combated, bids fair to exterminate it.

Louisville, Kentucky, May 10, 1912.

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## THE PSYCHO-PATHOLOGIC SIDE OF INEBRIETY

BY T. D. CROTHIERS, M.D.,

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The psychic side of the ordinary drinking man seen on the street in the hospital or in his home, where he may call in a medical man, is supposed to be limited to the moral condition of the victim. The impression prevails that the victim is simply weak and has given way to his lower impulses, both from design and from accident.

The victim accepts this and asserts that he could have done differently and then explains why, giving trifling causes. This psychological theory of vice, vicious impulses and neglect, which could all be removed and overcome by the prayer and pledge and appeals to his higher nature, is the basis of most of the popular literature on the temperance question.

Thousands of men and women are struggling to make these psychological theories practical and literal, and do what they call reform work, meaning to save the man and woman from the drink curse and make them total abstainers the rest of their lives.

The pro-alcoholics assert that the use of spirits is an instinct of every normal life to rise out of the present conditions and receive some benefit that could come from no other source. They assert that it is the abuse and stupidity in its use that bring about all the disorders and evils which follow.

The conflicts between the anti- and pro-alcoholics constitute a very important chapter of history and is still going on. The progress of the last few years has taken the subject out of theory and tradition and placed it in the realm of exact science.

The psychology of inebriety is very different from a moral study of free will, original sin and mere animal impulses. Its pathology differs widely from the teachings of the text-books and opens a new field which is just beginning to be occupied. The physiological chemical action of alcohol is another field that is new, and one that

requires no imagination or theory for explanation, but can be demonstrated by instruments of precision.

The tradition that alcohol was a stimulant and tonic and possessed some power to give new force and vigor to the cells and functional activity is a thing of the past. Studies of exact science in the laboratory show that alcohol is a depressant, anesthetic and narcotic, also that its first effects on the sensory centers are to diminish their acuteness and pervert their activity. In this way they delude the victim with a consciousness of vigor and strength that is contradicted when tested by instruments. The first effects of alcohol increasing the heart's action and sending the blood to the brain with greater velocity, is simply irritation, preceding the anesthesia and diminution of the power which follows. The patient is deceived. His consciousness of mental clearness and strength is unverifiable, and yet he does not know it.

The repeated use of spirits constantly lowers the functional and organic activities and deranges the metabolism of the body in a great variety of ways, that result in two conditions, lowered vitality and feeble resistance to germ invasions. This derangement is transmissible to the next generation, not in its direct form, but in greater susceptibility to disease and diseased conditions, with feebler powers of resistance and less immunity to the ordinary strains of life.

The class of men who usually come under medical care are the alcoholics and inebriates. They are quite distinct, psychically and pathologically.

The alcoholic is the constant drinker who is seldom intoxicated and boasts that he can drink moderately and is none the worse for it. He drinks daily, all forms of spirits and passes for an average man and perhaps does some good work. In reality he is both psychically and pathologically the center of continuous toxemias both formed within and from without. There is a steady degree of poisoning and derangement of nerve and protoplasm, which breaks out in some way and in some acute disease. Of all drinking men, the alcoholic is the most damaged pathologically. This may not appear from coarse surface measurements, but a careful study of his life work and capacity makes it very clear.

In some respects he may seem to have average capacity, yet in others his weakness, amounting almost to imbecility, is clearly evident. Thus a moderate drinker whose professional work apparently seems to be of high grade has associated with it a moral palsy and sexual insanity of a dement. The latter is covered up. He is known by the former only.

The alcoholic will always be found to have some great extremes and weaknesses that are both pathologic and psychologic, the direct result of the toxemias coming from spirits and other formations in the metabolism of the body.

A psychic study of the alcoholic reveals a degree of degeneration that is startling and deviations from the normal with incapacity and failures of control with feeble organic vigor. Pneumonia, nephritis and cerebral hemorrhage are the common terminals in these cases.

It is estimated that over half of all persons dying from pneumonia in middle life are either open or concealed alcoholics. Nephritis and cerebral hemorrhage show an equally startling proportion of persons who are so-called moderate drinkers.

A certain proportion of these alcoholics become inebriates, in other words, they drink to great excess and then have distinct free intervals of sobriety. The inebriate is a different class from the ordinary alcoholic. He drinks at intervals in a spasmodic way, becomes profoundly poisoned, then stops and after a longer or shorter period begins again.

The term periodic inebriate refers to a class who only drink after certain definite periods; sometimes these periods are very regular as to days and months. The inebriate in the meantime is temperate, a total abstainer and very often an active worker in the reform ranks. During this period psychically he is very pronounced in his antagonisms to all use of spirits, and his character and conduct fully confirm this. Then suddenly with or without cause he drinks to profound poison, and keeps this up for a longer or shorter time, then suddenly abstains, and a free interval follows.

The drink impulse resembles epilepsy in its convulsive character, sudden, impetuous and overwhelming desire to secure the narcotism which spirits offers, which is kept up in obedience to some unknown repellent power that causes the impulse to die out.

This is a distinct psychosis and is seen in all conditions of life and is the subject of a great variety of theories and much literature, particularly on the moral side.

Within the last half century the term disease has been applied to this condition and a study has fully borne out this claim, showing a pathology and a psychology that is traceable. Insanity grows out of this condition, also pauperism, criminality and epilepsy. Unlike the alcoholic he is not so degenerate, meaning by that word, profoundly poisoned and incapable of control in thought and act.

The alcoholic, with all his disability, may act automatically along the line of sanity. The inebriate may be very sane and normal for

distinct periods. Then he becomes very insane and abnormal. It is doubtful if the inebriate can retain his full vigor and strength and do much original work. The convulsive attacks so profoundly paralyze the cell and nerve activities that a return to normal vigor and control is not possible.

The inebriate of long standing is defective and incapable in many ways, although perhaps it may not be apparent, yet it is measurable by instruments of precision. The alcoholic is never fully sane. He may act rationally along accustomed lines and show accustomed vigor and force. To this there are few, if any, exceptions. Both of these classes have psychopathologic symptoms that can be determined with more or less exactness and will be seen in their conduct and mentality.

Many of the very extreme revolutionists and anarchists are alcoholics, and their extraordinary reasonings are evidence of diseases of a psychical nature. The neurasthenias, degenerations of nutrition and sudden palsies are simply symptoms of the poison from spirits and allied toxins. Next to syphilis, alcohol is one of the most far reaching and subtle poisons known.

When associated with syphilis the condition is very complex, and still more destructive. A venereal infection complicating inebriety is a very serious condition, and the physician should recognize this in his treatment and advice. The sudden or gradual onset of the drink paroxysm is often expressed by the word "habit," which implies a condition under the control of the victim which can be put on or taken off at will. This is very far from being true.

The so called habit of drinking has a physical basis, often as well defined as any other disease. The poisoning from the first use of spirits may produce a condition which calls for a return of the same toxin, and this may be the starting point of both organic and functional derangements, with a tendency to recur at intervals. A study of the history of both the alcoholic and inebriate exhibit a range of causes that are very startling in their positive effects.

The psychic changes that precede the drink craze and always follow are equally positive and clear. The pathologic changes are less defined, still the coarser instruments of precision reveal cell and tissue changes, traceable at once to distinct causes.

The significance of this is simply that this knowledge affords a clue to its rational treatment, and throws new light on the methods of prevention and cure. The absurdity of supposing that any one drug or combination can remove the toxins from the alcoholic and divert the explosive energies of the inebriate is evident in the quackish efforts to give relief. The subsidence of the drink craze



in inebriates is the natural history of the disease. The paroxysm will subside under any treatment, but the return of another paroxysm, or the conditions to delay the return, or prevent it altogether is a new therapeutic field. As in epilepsy, a study of the causes and the history of the progress of the disease will often furnish a clue to both the exciting and predisposing causes, the removal of which is followed by restoration. This must depend on an accurate study of all the conditions and influences which have entered into the growth and development of the person.

Heredity is a very powerful factor, and when known furnishes a clear prognosis of the relation of the causes to other diseases, and points out how far they are symptomatic or original degenerations. In the alcoholic, the charlatan efforts to drive off the drink impulse, on the assumption that this is the disease, fail.

Merely suspending the craze for spirits by drugs is not a cure, or even a temporary restoration. The same accurate study is required here, to determine how far heredity, occupation, surroundings and contagion have contributed to this delusional condition also, that alcohol is not necessary to health, and that its use is always injurious.

Short time treatments fail in much the same way as the prayer and pledge, because they do not reach back to the first causes. The psychic side is misinterpreted and the pathologic side is practically unknown. There is no treatment worthy of the name, unless based on an exhaustive study of the conditions present. This indicates but one course, and that is a prolonged nerve rest and building up, and return to normal life and living.

The egoism which has grown up and is a part of the defective mentality is no guide, and the present condition of comfort and freedom from the alcoholic craze is no evidence of health. On the contrary it should suggest more vigilant efforts to retain and keep intact the present conditions. The possibility of permanent cure is very much like that of syphilis. Exact care of the mind and body, with frequent recourse to specific remedies known to be destructive to the poison germs, is required.

In an experience of nearly forty years, I have noted many persons who recovered from both alcoholism and inebriety, but whose after life was one of unusual care and circumspection. A constant vigilance to avoid exciting and predisposing causes has enabled them to regain a great deal of their former vigor and do good work. The drink craze in both of these classes may subside and disappear without any particular remedies, but the permanency of this is unknown and cannot be determined. All this must be decided by an

exact knowledge and history of the beginning and progress of the disease.

That these persons are curable is true in the largest meaning of that word, and that the promise of restoration and cure is hopeful in all cases is also evident from a great variety of experience.

The possibility of mental and physical treatment is far greater than at present supposed, but along a different line and not limited to drugs and psychic measures. Every alcoholic and inebriate is a distinct case of itself. While the conditions are more or less common and general, there are in each one well defined causes and symptoms which determine the progress and termination of the case.

Medical skill and study will find this one of the most fertile fields for active work coming into prominence. It is estimated that at least there are two hundred thousand alcoholics and inebriates in this country, who are pronounced, and belong to the chronic class, that receive little or no treatment

In all probability the number far exceeds this. Persons who are suffering and dying, and leaving an entailment of disease that cannot be estimated, are amenable and proper subjects for medical care and treatment. What proportion of these cases could be cured and restored cannot be determined, but the best judgment of men familiar with the physical side of this subject and its curability agree that over 50 per cent. could be restored and live a natural normal life.

A very large proportion of all these persons can be restored, but this restoration is in many cases temporary. The practical character of the medical care of the inebriates and alcoholics is far more promising than that of the insane or epileptics.

Of this there can be no doubt. The early care and treatment of these classes would be seen in the diminished number of insane, epileptics, criminals and paupers. To-day the neglect of this class is readily traceable in the increasing armies of defectives and incurables that become dependent on their families and the State. Statistical studies show great possibilities of future practical work along this line, which cannot be estimated at present.

The psychic and pathologic side of the subject appeals to physicians everywhere, and the time is coming when this work will come into active medical practice.

## DE SENECTUTE

By JOHN W. WAINWRIGHT, M.D., New York City

Francis Galton, the Eugenist, who died about a year ago, came of amazingly long lived stock; relatives had died at 85, at 96, two at 89, one 93 another 97. His surviving brother is 93 and, it is said, in good health. In his autobiography Francis Galton made a most wise observation: "My own age is now eighty-six. I find old age thus far to be a very happy time, on the condition of submitting frankly to its many limitations."

Buffon computed that any creature's natural duration of life is six or seven times that of its natural period of growth, and that a man's growth is generally attained by his fourteenth year, his adolescence; when Buffon estimated that our span of life should be five score rather than three score and ten. Others have reached much the same conclusion, though not in the same way. Haller, for example, computed that human development is attained by the twentieth year; and that life for human beings should endure five times that period.

Buffon believed also that longevity does not depend on habits of life nor on modes of living; but that it is inherent in the individual. There is much in this view when we reflect upon those of our acquaintances who have lived to great age despite the most execrably injudicious habits. Physicians who do autopsy work are often amazed by the extensive organic changes found in subjects that have died in advanced years and who, according to post-mortem evidence, must have at various times in their lives suffered grave diseases, despite the ravages of which they have lived to bury most of the friends of their youth.

Dr. Meltzer in his paper read before the Harvey Society on "Factors of Safety in the Animal Economy," does much to substantiate the belief which Buffon held; we are amazed to be so convincingly reminded how our organs and tissues are fortified, both as to function and structure to the evident purpose that the individual may live out his rounded existence (barring direct killing) notwithstanding the stress and strain of existence, of many diseases and traumatisms.

Metchnikoff, in his "Prolongation of Life," is hardly in accord with Buffon. In this work, which is a sequel to his "Nature of Man," he submits that it is possible for the average human life to be very greatly lengthened. In seeking to prove his thesis he investigates not only the animal, but also the vegetable kingdom—life, indeed, wherever it is manifested; and he adduces many facts to show that existence, in some of its manifestations at least, has

been prolonged to an apparently indefinite period. The lower forms of plant life (such as the unicellular infusoria) have a continuous existence, which is apparently terminated only by accidental causes. A parent body lives through an indefinite series of divisions, by which it is multiplied beyond our power of estimation; it seems never itself to suffer natural death.

Such is the case also with some of the higher plants, certain of which attain to gigantic size. The famous dragon tree, which Humboldt discovered, and which was overthrown by a storm in 1868, was examined by Metchnikoff, who calculated that it must have lived several thousand years. Adamson, the French naturalist, places the age of the baobab, a Cape Verde tree, at five thousand one hundred and fifty years. In the animal kingdom there are fishes, birds and reptiles which live well into the centuries.

As a general rule Metchnikoff finds the duration of life to decrease as the complexity of the organization increases; the finer and nobler organism must be the shorter lived. This reminds one of Pushkin's fable of the eagle and the vulture: "How is it," asks the eagle, "that you live three hundred years, whilst I must die at thirty?" "Come with me," said the vulture, "and I will show you how to live as long as I." And they went together to a place where carrion abounded. Whereat the eagle concluded he had rather live but thirty years upon rich red meat than three hundred if to that end he had to eat carrion. The lower vertebrates live longer than the mammals.

Centenarians are not so rare as may be supposed by those who have not looked into the subject. In France, La Belle France, where life is so rich in roses, and wine and the song of birds—nearly one hundred and fifty people die every year after having lived a century or more. In some other countries, especially in Eastern Europe, the number of centenarians is still greater; in Greece there are nine times as many as in France.

We are thus invited to consider that the idea of prolonging human life is not a chimera; and Metchnikoff believes the chief reason why most human beings do not attain greater longevity to be that, because of certain necessities incident to the human struggle for existence, there has been developed a complex intestinal arrangement which, although useful in some respects, forms, nevertheless, a breeding place for bacteria inimical to the organism. This portion of his thesis was several years ago made known to the profession; still it is worth while to recall his conviction that the colon is the chief enemy of long life; that it is the toxins evolved by the *B. coli* and other putrefactive bacteria in this "culture tube" which engender the

diseases responsible for the debility of old age (*asthenia de senectute*), with its consequent ending in unnaturally premature death.

Metchnikoff, then, would have us eat only cooked food; and drink only fluids that have previously been boiled. Thus should we be able to destroy most, though not all, harmful bacteria. With his specific against these maleficent agencies (inducing as they do disease, precocious senility and premature death), we are all familiar. It is lactic acid, his conclusions concerning which were reached from observation of races that live chiefly on sour milk, and among whom great age is common.

Dr. I. L. Nascher is perhaps the only special worker in this department of medicine, which he has named "Geriatrics"—the study of old age, and of its maladies. Among his many observations is the insistence upon some occupation for those on in years. Never strenuous, of course, but sufficient to pass the time and to keep the mind off the lapse of the years. All healthy old people need some kind of employment. They do not want to be treated. It creates a bad atmosphere around them and hastens mental unbalance "and the end of everything."

It needs some philosophy to grow old gracefully, to live at all times with dignity. The best preparation for this is a life well spent. The venerable seldom fear death. In them the instinct of life, the will-to-live, gives place to the instinct of death, as when the aged aunt of Brillat-Savarin (who loved him tenderly) said to him, on her deathbed, whilst he raised her head from the pillow and besought her to drink some wine: "My dear, if you ever reach my age, you will find that one wants to die just as one wants to sleep."

The aged should keep in touch with the world and all that concerns humanity. He should court the young and vigorous, cultivate those things most dear to him in earlier life; music, literature, art, temperate habits, congenial companionship and above all pleasing conversation. He should avoid too radical a change of habits, rather modify than strictly avoid those that tax his strength; should eat moderately of nutritious appetizing foods and sleep much. If he is fond of animals, he should indulge a good dog and a horse. If agreeable, live in the country or suburb near enough to a bustling city to mix occasionally with the throng of human life, visit the theater, opera, and the forum; should live with or near orderly children, admire the flowers, birds, occasional solitude among the trees. Thus life will be more a delightful dream than stern existence, and thus with a pure soul and clean thoughts he will await the summons without fear and like the Deerslayer in Cooper's "Prairie," answer "Here" when his name is called.



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## EDITORIALS

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### HYDROPHOBIA

The essential germ of rabies has not yet been demonstrated to the eye, the disease in this regard being in the class with such infections as small-pox, scarlet fever, measles and epidemic poliomyelitis. There is no death more appalling than that from hydrophobia; there is at present no other method of avoiding such death than by the Pasteur treatment. The procedure then, in the event of being bitten by a supposedly rabid animal, is clear beyond any question. The wound inflicted by the bite is treated antiseptically, quite as any other, especially an infected wound. Bleeding is encouraged; ragged edges from the bite—if there be any—are excised under local anesthesia. Antiseptic solutions are used. Even if the diagnosis of rabies is not positively assured the wound surface should be cauterized with caustic potash or concentrated carbolic acid or compound tincture of iodine. Yet cauterization is not invariably effective. Hydrophobia deaths have followed prompt cauterization; this procedure should not give a factitious sense of security. All contaminated clothing were best destroyed; or it is boiled, or exposed for several days in the open air and in sunlight.

The dog, if captured alive, is confined and watched for from a

week to a fortnight; if it develops rabies it is killed, and the brain examined for the Negri bodies; these are pathognomonic of hydrophobia, though their absence does not negative the diagnosis. Dr. C. G. Rambaud, of the Pasteur Institute in New York City, well describes the development of canine rabies: the disposition is changed; it at first becomes unusually attached to its master; it soon, however, begins to disappear from its home for several hours to two days; there is change in the bark, or total absence of bark, even on provocation; there is lack of appetite, with difficulty in chewing and swallowing solid food. The animal becomes excited, and would appear to have hallucinations; it snaps at imaginary objects; it may now attack its master; it is exasperated by the appearance of another dog, except in the dumb or paralytic form of the disease; it tears cushions, carpets and the like. As its sufferings progress it cannot eat; it takes food into its mouth, but this drops after one or two attempts at swallowing; drinking, however, is little or not at all interfered with, and there is no hydrophobia in the strict meaning of the term. Beginning paralysis of the hind legs is evidenced by unsteady gait; then comes paralysis—dropping of the lower jaw, and finally general paralysis. This symptomatology is fairly applicable to other animals—rabid cats, horses, cattle, pigs, rats, wolves, foxes, bears, skunks, jackals.

Immediately the diagnosis is established in the human sufferer, inexorable logic requires the Pasteur treatment. Besides the pioneer Institute in the metropolis some twenty other institutions in nineteen States now administer this treatment; and the Pasteur inoculations may also be obtained from the United States Public Health and Marine Hospital Service at Washington, on application by health officers having moderate laboratory facilities for administering the virus under their supervision.\* As to the efficacy of this treatment: Tardieu and Bouley collected the cases of 855 patients in France, of whom 399, or 46.6 per cent., died; this was before the Pasteur treatment was instituted. Twenty-six thousand cases thus treated in Paris from 1886 to 1901 have given a hydrophobia death rate of less than 1 per cent.; and a like ratio has been obtained in New

\*Kerr, J. W.; Stimson, A.M.; the Prevalence of Rabies in the United States Public Health and Marine Hospital, Washington, D. C.

York and other great cities. In 1908 the Kasauli Institute, in India, records 1398 cases of patients subjected to the Pasteur treatment, with five deaths—a mortality of 0.36 per cent.; of 108 persons bitten by supposedly rabid dogs not thus treated 44 died. In India, again, of 154 persons bitten by rabid jackals, and who did not undergo the Pasteur treatment, 48 died. Buenos Ayres reports that among 10,000 persons bitten by supposedly rabid animals and who have undergone the Pasteur treatment there have been 73 deaths—0.67 per cent. The comparatively rare deaths have mostly been because the inoculations were not promptly administered; its beneficent effects are rendered possible only by the fact that the average incubation of human hydrophobia is relatively long. This treatment should be initiated within at least a fortnight after the bite.

The only way to prevent human hydrophobia is by administrative measures. England has a muzzling order which, by the way, she enforces; the disease, once of extensive incidence in that country, is now practically unknown there. In matter-of-fact North Germany, where those who idolize the brute at the expense of human life get scant sympathy, the enforced muzzling of dogs has resulted in the practical elimination of rabies—which used to be very rife in Germany. In Berlin rabies was common prior to 1875; since that year a law has been enforced requiring the killing of dogs suspected of rabies, and the muzzling and leashing of all dogs when in public places: there have been no cases in that city since 1883. Human hydrophobia resulted in 22 deaths in Paris in 1885, and 12 in 1901; in the past five years there have been in that city no deaths from that cause; such progressive disappearance is rightly ascribed to the enforcement of municipal ordinances. When stray dogs are captured methodically and without let-up, hydrophobia diminishes and seems practically extinct. When the pursuit of the civic mongrel becomes relaxed, rabies is revived and the number of its victims increases. Thus it is considered necessary to capture annually from twelve to fourteen thousand dogs in Paris, to the end that rabies may be eliminated from civic experience.

All animals, dogs or otherwise, suspected of rabies should be killed. All dogs that are worth the price of a muzzle or a leash

should be muzzled or leashed; the rest should be destroyed. It is not to be here hoped to influence those zoophiliacs who are nowadays making such qualming spectacles of themselves; it is, however, submitted that the best and happiest fate for the stray mongrel is the blessed nepenthe afforded by the laboratory anesthetic.

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### INTESTINAL DISINFECTION

For many years, and in a crude way almost from time immemorial, medical practitioners have sought an efficient mode of disinfecting the intestines. It has been always fully recognized that intestinal putrefaction is the primary cause of numberless disorders, probably of the majority of the more serious diseases. Consequently, it has been the earnest aim of physicians, and especially since the knowledge of bacteriology and relation of disease to pathogenic germs, has been gained, to discover a really effective intestinal antiseptic. Despite the fact, however, that during recent years one substance or another has been more or less confidently lauded as the ideal intestinal disinfectant, further trial has always shown that in some important property the remedy has been grievously lacking. Now it has come to pass that most practitioners have given up the search in despair, and seem to have resigned themselves to the conviction that intestinal antiseptics is impossible. It has been proved illusory, or at least to a great extent illusory, to procure intestinal disinfection, when chemical antiseptics are used. Naphthol and the rest cannot have more than a very mild antiputrefactive action, and they are not free from danger. All physicians recognize the injurious effect of salicylic acid upon a diseased kidney, and of course, calomel, which still remains the sheet anchor of many, is by no means a safe remedy. Moreover, the naphthols have an irritating effect upon the gastro mucous membrane. It, perhaps, may be stated with a considerable degree of emphasis, that the attempt to destroy intestinal bacteria by means of chemical substances has but small chance of success. It cannot be denied that in certain circumstances it is possible in this way to arrest the development of bacteria, but the effect is feeble and may be followed by the most unfavorable results, when the natural means of defense of the intestine are impaired. Metchnikoff aroused great

hopes by the formulation of the therapeutic principle, of the substitution of a new bacterial flora, for the pathogenic flora of the intestine, which object he tried to achieve by the agency of lactic medication. It cannot be said that these high hopes have been fulfilled to the extent that sufferers were led to expect.

Adolf Schmidt, *Zentralb. für inn. Med.*, January 6, 1912, writes on the disinfection of the contents of the small intestine in gastric and duodenal catarrh and other diseases accompanied by abnormal fermentative processes. Satisfactory disinfection, Schmidt points out, is still an unsolved problem. A series of experiments seem to have shown with a greater or less degree of certainty that when it is possible to introduce nascent oxygen into the small bowel a notable diminution in bacterial growth is the result. According to Schmidt, and this is probably the view of other than German authorities, oxygen is more efficacious in this respect than any of the hitherto recognized intestinal antiseptics, such as calomel, salicylic acid, thymol, naphthol, creasote, etc. Furthermore, oxygen possesses this great advantage over any of the aforementioned drugs in that it exerts no undesirable after or by effects. The difficulty has always been how to introduce oxygen in sufficient quantities to have the desired therapeutic effect into the small intestine. Berger and Tsuchiya employed in their investigations a combination of hydrogen peroxide with agar-agar. Although the results obtained with this preparation have been promising, they have not met the expectations, for it possesses certain drawbacks which seriously interfere with its usefulness in ordinary practice. For instance, it only acts at all when freshly prepared, as on keeping it soon loses its  $H_2O_2$ , which puts it out of court so far as the general practitioner is concerned. Hirata employed a combination of hydrogen peroxide with cocoa butter and beeswax, which was even less of a practical success. Schmidt conceived the idea of introducing oxygen gas directly into the small intestine by means of the duodenal tube of Einhorn and Gross. He has found on trial that in this way it is comparatively easy to introduce relatively large quantities of gas into the bowel and that the proceeding is followed by remarkably good therapeutic results. Usually two to four liters of oxygen have been insufflated. This quantity has not been ex-



ceeded on account of the danger of the gas, if under much pressure, obtaining direct entrance into a vein or the capillaries and producing embolism of the lungs. Schmidt states that the operation is in no way disagreeable and is not followed by any peristaltic discomfort or colic. After an hour or so profuse odorless flatus passes per anum, a sign that the gas has reached the large bowel. The effect, although marked, appears to be of somewhat brief duration and the insufflation requires to be repeated at least twice daily. This method is certainly open to the criticism aimed at the peroxide of hydrogen and agar-agar combination, that it could not be readily used in ordinary practice. In addition, it seems to be a dangerous measure and until it has been more fully tested will not commend itself to the general practitioner. Still there is little doubt that oxygen is the best disinfectant for intestinal putrefaction, if only it can be introduced in a fairly simple and effective manner. Perhaps, means will be devised in this direction with a preparation of peroxide of hydrogen or a combination of peroxide of hydrogen with a substance which will keep and will throw off nascent oxygen, when introduced into the intestine. The man who discovers a method of simply and thoroughly disinfecting the small intestine will rank as one of the very greatest benefactors to mankind.

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### TYPHOID CARRIERS

Although a great deal is known concerning typhoid fever, it is becoming more and more evident that much has yet to be learned. The question of the paratyphoid infections is by no means settled, and their differentiation is a matter of considerable difference of opinion among high medical authorities. The means of dissemination of typhoid fever are more diverse than was up to comparatively recent times generally believed, and this ignorance of some now known methods of spread, explain the occurrence of epidemics of the disease, which at the time were regarded as of obscure origin. It is, indeed, extremely likely that a very large number of cases of typhoid fever have been and are due to "typhoid carriers" as sources of infection. Fortunately, knowledge as to carriers is now more or less definite. There are, it may be stated, two modes by which typhoid fever is disseminated: 1. By means of water, milk and

food products contaminated directly or indirectly by some active typhoid infection, remote from the source of infection. 2. By contaminated water or milk or food products directly, that is, by typhoid carriers. Dr. Willard J. Stone, of Toledo, Ohio, writes on this subject in the *American Journal of Medical Science*, April, and points out that carriers may be divided into two classes, "idiopathic or primary carriers," who have not had the disease to their knowledge, and "secondary carriers," who have had the disease. It seems that typhoid carriers who have become so merely by association with those suffering from the disease are fairly common among nurses and orderlies. Such individuals may continue to excrete typhoid bacilli in the stools and urine for years. Their own tolerance to the infection is probably due either to natural immunity or to partial immunity from an earlier unrecognized mild typhoid infection. In 1899 Houston reported the first cases of a contact carrier, while Park has estimated that probably one in every 500 adults, who has never knowingly had typhoid fever, is a typhoid bacilli carrier. As for secondary carriers, it is stated that about 4 per cent. of all persons who have to their knowledge had typhoid fever, become chronic carriers of the disease for months and years. They have secured from the attack only a partial immunity in the sense that while certain protective immune bodies, such as the opsonins and stimulins are augmented by the attack, others, as the bactericidins and bacteriolysins, are not augmented to the point of destruction. Their immunity in fact, is phagocytic, not bactericidal or bacteriolytic. It has been shown that the majority of carriers experience little discomfort from the presence of the active germs of disease in their system.

Perhaps, the most important feature of Stone's extremely instructive and able paper is that in which he draws attention to the part played by the gall bladder in the dissemination of typhoid by carriers. Many authorities have demonstrated that infection often reaches the gall bladder. In the *Journal of the American Medical Association*, February 24, 1912, C. W. Gould and G. L. Qualls state that the gall bladder is the harboring place of the bacilli which are excreted in the feces. After an attack of typhoid fever the infection may remain latent in the gall bladder or in the alimentary

or urinary tract for years. In most chronic carriers the bacilli are eliminated with the feces; in a smaller number the urine contains the bacilli. Forster believes the gall bladder to be the site of a continued reproduction of the bacilli, which are intermittently ejected into the intestine. The Ledinghams uphold this view, since investigations have shown that the bacilli may disappear during convalescence only to reappear several months later following perhaps, the administration of some cholagogue cathartic, as suggested by Reitter.

Stone's conclusions are as follows: 1. Not only should individuals who are typhoid carriers receive appropriate treatment, but all persons, including physicians and nurses, whose duties call for the attendance on and care of typhoid cases, should receive immunizing treatment. 2. Such treatment has been found efficient and productive of little discomfort. 3. When typhoid bacilli have produced clinical or bacteriological evidence of cholecystitis, it is doubtful whether vaccine treatment will of itself be of avail, surgical drainage of the viscus then being indicated; on the other hand, persons showing evidence of interstitial or urinary tract perpetuation of the bacilli, without cholecystitis, during convalescence from the disease or subsequently, should be given the opportunity to receive appropriate vaccine treatment. 4. Chronic carriers who have been treated unsuccessfully by vaccine should be under the control of the local board of health and furnished employment, if necessary, which will not require the handling of food products.

In relation to the matter of typhoid fever carriers, it is very interesting to note that the Milroy Lectures delivered before the Royal College of Physicians in London recently, dealt with paratyphoid infections and meat poisoning. These lectures were given by one of the best known British authorities, Dr. F. A. Bainbridge, and may be regarded as an epitomized presentation of the very latest views on the subject. It is stated that there is definite evidence of the existence of paratyphoid carriers, those infected with *B. paratyphosus* (A). In fact there appears to be little or no essential difference between typhoid and paratyphoid (A) fever as regards the occurrence and character of the carrier cases. It is not known whether the more frequent source of the spread of

paratyphoid (A) fever is by infection, by acute carriers or by unrecognized cases. Grattan and Wood, however, consider that the acute convalescent carrier is the chief cause of the spread of the disease in India. Also there are numerous cases of human paratyphoid (B) fever chronic carriers, but literature does not record any cases of acute paratyphoid (B) fever carriers, although there is no reason to suppose that they do not occur. Paratyphoid (B) fever shows a close resemblance, as far as carriers are concerned, to typhoid fever, as the majority of cases are women suffering from affections of the gall bladder. Paratyphoid (A) fever cases do not show the same results, but it must be borne in mind that in India, in which country the most painstaking investigations into paratyphoid (A) fever have been made, nearly all the sufferers from the disease are men in whom the gall bladder is very rarely affected.

The salient points of the most recent investigations into the typhoid carrier question are that the disease, both in the typhoid and paratyphoid forms, is largely spread by carriers, how widely it is impossible to state. That the gall bladder appears to be the main seat of infection in chronic carriers, who are, perhaps, mostly women. That the paratyphoid fevers are more to be dreaded as a means of disseminating infection because on account of their mild type they are less carefully looked after in this respect. That the vaccine treatment appears to confer a certain degree of immunity, and should therefore be used, because of its protective and preventive properties. Lastly, it is obvious that the paratyphoid infections should be closely investigated in this country and the whole matter of human carriers, both of typhoid and paratyphoid fevers, should be far more diligently studied than has been the case up to the present time.

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## MEN OF SCIENCE AND SOCIALISM

Now that socialism is so in the air in all parts of the civilized world, and that many of its tenets have been brought into application in New Zealand, and to some extent in Australia, and other parts of the world, it will be interesting and instructive to consider for a moment the attitude of socialism to science. There is a sec-

tion of those imbued with views generally termed socialistic whose opinions regarding natural science are avowedly hostile. Among these Mr. Bernard Shaw is not included, not that his dicta concerning vaccination and, indeed, with respect to medicine in general, are not characteristically intolerant, but owing to the fact that in spite of the brilliancy of his intellect and the pungent wit of many of his sayings, Mr. Shaw is so obviously a poseur that the bon mots he scatters abroad with such reckless profusion are not regarded with serious attention by thoughtful persons. Many of the writings of doctrinaire socialists, as Karl Marx, for instance, profess views as to natural science which are almost incomprehensible. Marx and his followers inculcate the teaching that no consideration whatever should be shown to inventors, discoverers, or men of science. In fact, in the world as sketched by Marx, such men should not be allowed to have a place. The Fabians, representative of another sort, if it may be termed of the socialistic body, would permit the scientific worker a wage superior to the manual laborer, because they recognize the fact that neither can progress without the aid of the other. However, the last type of socialist evolved has different conceptions of the matter, and would allow the man of science to remain so long as he was content to work without pay, but if he objected to this proposition he should be let go. Socialists, as a class, are particularly spiteful—which seems the correct word—to the medical profession, and much of the policy of the British Government recently shown toward that profession may be put down to the infusion of socialistic views into certain members of the Cabinet, or to socialistic views which they have seen fit to assume.

They appear to have based their actions on the assumption that distasteful labor should be compensated most generously. That a man, for example, who works all night as driver or conductor of a railway train should be better paid than the man who labors with his brain; the argument being that brain work is intellectual, and therefore pleasant, and not entitled to large rewards, while the work of a night man is unpleasant, and consequently he should be well compensated because of its unpleasantness.

The socialists' doctrine is to carry such precepts into effect, that



is, when they have the opportunity, and to relegate men of science and perhaps, especially, medical men to the dust heap. Knowledge and scientific knowledge, in particular, appears to act on the socialist like a red flag on a bull. He will have none of it, he advocates the downfall of intellectual superiority, as of all kind of superiority or authority, and craves a world in which dull mediocrity shall reign supreme. Incidentally, somewhat on the quiet, he proposes as a part of his program that license shall have greater sway and depicts the pleasures and advantages of no law or restraint in glowing terms.

Fortunately, the sane, sound sense of the people, as a rule, has balked at many of the specious arguments of the socialistic fraternity, and however much the evils of the existing situation are deplored, refuses to down with everything and to design and build a new fabric of society on the ruins of the old. Many of these unprogressive citizens even have not as yet lost faith in the medical profession, and it is probable that for years to come and in face of the protests of socialists they will send for a medical man when they are sick, and, moreover, will be willing to pay him a decent wage. This is a mad world, but not quite so mad as some of the advanced socialists would make it.

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### THE CAUSE OF CANCER

The first great principle in the study of disease, indeed, the very foundation of our knowledge of the successful treatment of disease is the cause. Once this is clearly proven, rational treatment will quickly follow. Much has been accomplished in the last decade in this direction, for within that time, or a trifle longer, we have arrived at a positive knowledge of the cause of most infectious diseases, including tuberculosis, malaria, typhoid, cholera, plague, diphtheria, syphilis, gonorrhea, and numerous diseases of lesser note. The study of bacteriology has made clear the etiology of these complaints, while a more exact knowledge of pathology has cleared the way for successful treatment. There is, however, much that must yet be worked out in the laboratory, for the origin of numerous complaints are yet unknown.

It would seem that with all the efforts directed to demonstrate the cause of cancer, the truth must surely and shortly be known; and yet the multiplicity of theories abound and multiply. New theories are offered and old and abandoned ones rehabilitated. Years ago, it was believed by not a few that cancer was caused by ingesting particles of diseased plants, notably excrescences on trees known as galls, fungus growths in various plants, blight in apples and pears. Recently the Department of Agriculture have again called attention to this theory; a theory which may yet uncover the cause of carcinoma and sarcoma.

Further, we find in the American Journal of Dermatology for December, 1911, an article, "Cancer a Parasitic Disease; The Earthworm, the Original Host of the Parasites," by H. D. Walker, M.D., of Buffalo, N. Y. Doctor Walker states that he "has studied the subject since 1901, and that his experiments and study have convinced him that the earthworm is the original host of the cancer parasite and that the disease in man is generally brought about by eating vegetables, which are infected by earthworms, while feeding upon them." He further states that the parasites can be seen in stained sections of the earthworm, also when removed from the earthworm, and stained on glass slides, in culture slides with distilled water and small pieces of grass, in infected cabbage leaves, and in tumors of man and those produced by infecting animals. They can, he states, be recovered from the blood of these animals before and after their death, and are also found in the blood in well marked cases of cancer in man. Specimens prepared from tumors which he produced in animals with the parasite described were examined by pathologists and pronounced cancer.

The earthworm, *allolobophora foetida*, which inhabit manure heaps and rich soil, is said to be the host of the parasites which cause carcinoma and the *lumbricus herculeus*, the large earthworm, used generally in biological work, the host of small round and spindle-celled sarcoma; the parasites are deposited on vegetables as the earthworm crawls over them, thus infecting the vegetables.

Fortunately not all persons who eat these infected vegetables develop cancer.

## DIGEST OF CURRENT MEDICAL LITERATURE

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*The Nature and Treatment of Infective or Rheumatoid Arthritis.*—Views as to the causation of disease are changing almost daily, owing to the bright light which is being thrown on the question by earnest investigators. The science of bacteriology and its rapid advance are responsible for most of this newer knowledge. In no branch of medicine has more progress been made than in the study of the rheumatic affections. Drs. Poynton and Paine by their brilliant researches have laid bare many of the secrets relating to the causation of rheumatic diseases and especially of that condition known as rheumatoid arthritis. On April 12 last, there took place before the West London Medico-Chirurgical Society, a special discussion on rheumatoid arthritis. Dr. Poynton raised only one point in the problem under discussion. That was the demonstration that one micrococcus, namely that which he believed to be the cause of acute rheumatism, might experimentally produce in animals various types of arthritis. He believed that among the many causes of rheumatoid arthritis, acute rheumatism must be included; and he wished to make it clear that to try to differentiate a case as one of rheumatoid arthritis upon the character of its lesions alone would be liable to lead to error. The question then to be elucidated was, can rheumatoid arthritis arise without some infecting agent. He, together with Dr. Paine, had investigated a considerable number of rheumatoid joints and was inclined to the belief that just as certain streptococci and other organisms of that group might produce these lesions, so also might some staphylococci and organisms of that group. In short, he regarded rheumatoid arthritis as the result of many infections, and though he believed the constitution of the patient had an important share in the history of the disease, he rather doubted the possibility of such lesions arising without the addition of some infective agent. Almost all those who joined in the discussion agreed with Poynton that rheumatoid arthritis was due to different infections, according to the particular cause.

Another speaker, Dr. Lloyd Williams, dealt with the matter of oral sepsis in the causation of rheumatoid arthritis and tabulated the conditions of the teeth favoring infection. He also narrated cases in which a septic condition of the teeth accompanied rheumatoid arthritis, and in which the injection of vaccine prepared from the patient's own cultures of bacilli brought about speedy and great improvement. Dr. Middleton described the various routine methods of treatment, while Dr. Horder contributed a paper dealing with

the use of vaccines in the disease and emphasized the fact that inoculations should form only one part of the treatment and that it should be remembered that in many cases irreparable damage had been done to the joint before injections were begun. On the whole he considered that the results of the treatment of the disease by vaccines were encouraging.

The general trend of the discussion,—this is probably the most widespread view of the matter nowadays,—was that there is no infective agent causing rheumatoid arthritis. Oral sepsis is sometimes the accompaniment or precursor of infective arthritis, while other foci of infection are the nose, pharynx and the intestinal and utero vaginal canals. If this be indeed the case the obvious line of treatment is to discover the cause by searching for any suspected foci of infection. Vaccinotherapy appears to have given good results, but of course, dependence must not be placed only on this mode of treatment. The subject of rheumatoid arthritis is a large one, and it might be well if it were discussed more widely.

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*Preventive Medicine the Medicine of the Future* is the title of an address by Sir James Barr, which dealt mainly with the problem of the unfit. Sir James pointed out that the health of a nation is its most valuable asset; and that the maintenance of health is of much more importance than the treatment of disease. The struggle for existence is not merely an individual question, but is becoming more and more a national one; and the nation which produces the finest race is sure to win in the long run. What children usually die of is their parents; what a nation dies of is lack of men. The countries which have, to a large extent, suspended a selective death-rate, but have not been wise enough to establish a selective birth-rate, are certain to decay and go the way of all the ancient nations that have disappeared and have made way for more vigorous races. As to the question of inheritance: "Above all, for the prevention of both insanity and consumption, discourage and prevent the propagation of the species by the mental and physical weaklings. Raise up a race which will not be catching tuberculosis or anything else. I would advise you, while showing all possible kindness to the insane and mentally defective, to give them clearly to understand that with them their breed must come to an end. Insanity and mental deficiency are largely questions of inheritance. With the insane, the imbecile, the idiot, the mentally defective, the criminal, the ordinary wastrel, the loafer, the professional pauper, the tramp, the footpad, the drunkard and other mental and physical degenerates, prevention is certainly better than cure; but you will never

succeed in either prevention or cure by maudlin sentimentality." As regards the affections of infancy and childhood: "It will be very difficult to prevent the spread of infectious diseases among children so long as we have overcrowding, defective ventilation, dust and want of cleanliness in the homes, schools and public conveyances. However, a great deal can be done for local conditions by looking after the children's teeth, by seeing that their jaws and teeth get plenty of exercise in chewing food, by keeping their mouths and nasal passages as aseptic as possible, and by removing any obstructions, such as adenoids and enlarged tonsils."

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*The invalid habit* is characteristic of thousands of semi-invalids, who are wasting their precious days "resting;" these people would find happiness and gain health into the bargain if they would get off their sofas and do a share of the world's work. In some cases, especially in women, invalidism has originated after a genuine illness. Overcoddling in convalescence, encouragement to "take care of themselves" and to avoid any kind of overexertion leads to invalid ways, which gradually lapse into the invalid habit. Such people breakfast in bed, lie down again for two hours after luncheon and return to bed before dressing for dinner. Their condition becomes more and more hopeless as time goes on; but if the work cure is applied to them vigorously and drastically they very soon become normal human beings again. The difficulty is to get people to understand that their minor dyspepsia, sleeplessness and nervous ailments are the inevitable outcome of their mode of life, and that they would find appetite, and cure dyspepsia and insomnia if they would take to work. The new cure for blues, nerves and general health is cheap, within the reach of every one, and efficacious. It consists simply of work—physical work, mental work, all kinds of work, so long as the patient can be kept fully occupied and allowed no time to think about health. Many are ill simply because they imagine they are ill. The work cure allows no such introspection.

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*A painless method of removing warts*, and that without disfigurement, is described by Dr. A. B. Cates, of Boston. A wart consists histologically of a fibrous stroma, containing in its meshes blood vessels and lymphatics and covered with epithelium, which corresponds to the type of tissue in which or from which it grows. Wherefore, any agent that will destroy the vessels feeding this growth, without at the same time injuring normal tissue, will effect a cure. The agent that will do this with no injury to the nor-



mal tissue, with no pain to the patient and with good cosmetic effect (leaving no scar), is ethyl chloride. This agent coagulates the blood in the vessels supplying the wart, thus shutting off its nutrition; the wart shrivels up and drops off. A pledget of sterile cotton is wet in cold water and drawn out in a tape long enough to surround the wart and broad enough to protect the skin for half an inch or more beyond the margin of the wart. Then a fine stream of ethyl chloride is played over the wart until it is covered with frost—and no longer. Should the adjacent skin be frozen, we take another pledget of cotton wrung out in cold water and rub gently but vigorously with it. One or two applications at intervals of a week will make most warts disappear; the same is true of moles and angiomas.

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*Diphtheria Antitoxin and Anaphylaxis.*—J. A. Roddy states, in the Medical Record, that a first injection of horse serum into man is innocuous; anaphylaxis is rarely manifest after a subsequent injection, and when it occurs complete recovery usually follows. The danger of anaphylaxis is insignificant in comparison with the danger of diphtheria. The necessity of administering a second dose of diphtheria antitoxin, and consequently the occurrence of anaphylactic phenomena, can be almost, if not entirely, avoided by the proper administration of the first dose.

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*Permanent Tonsil Infection.*—The Medical Record notes that among the alleged results of tonsillar infection are tuberculosis, acute rheumatism (with cardiac complications and chorea), sepsis, appendicitis, etc. Passler applies the term permanent infection to chronic tonsillar cryptotomies, with formation of secretion and tonsil plugs; this condition he considers responsible in part for the above mentioned infections. The chief argument against the tonsillar hypothesis has always been the very small percentage of positive findings. There is no doubt that after tonsillectomy certain chronic or recurrent lesions at remote localities have often improved; and tonsils in a condition of permanent infection should certainly be cured on general principles. Every crypt should be destroyed; this may sometimes be effected without extirpation. Passler evidently does not regard the tonsillar condition as in any way specific for causing general infections. We extirpate pyogenic foci just as we would proceed in and about dental alveoli, the nasal sinuses, the pharyngeal tonsils, uterine adnexa, appendix in recurrent appendicular suppuration, and the like.

## THERAPEUTIC PROGRESS

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**Isopral.**—Wiki, *Revue Medicale de la Suisse Romande*, February, 1912, reviewing the relationship of chemical constitution to pharmacodynamic action of general anesthetics and hypnotics, concludes from clinical experience that hypnotics containing ketone or aldehyde groups are less trustworthy than those containing alkyl radicals. The introduction of the halogens, usually chlorine, greatly enhances the hypnoanesthetic power of the hydrocarbons, but it also renders them more toxic either from its mere presence or (as has been before clearly shown) from the position it occupies in the molecule. This toxic action is manifested particularly upon the cardiovascular system, while agents without the halogen content are more toxic, as may be demonstrated by comparing the action of chloroform and ether, chloral with paraldehyde, or dormiol with hedonal. Isopral, however, is an exception to this rule, according to Wiki, who attributes the difference to its volatile character. He thinks, therefore, that isopral should be grouped with hedonal rather than with dormiol or chloral.

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**Cells of Our Body Never Know What Food We Eat.**—At a recent meeting of Swiss men of science, Professor Emil Abdehalden concisely defined a modern viewpoint of nutrition which is rapidly becoming prominent when he said, "The cells of our body never learn what the character of the food which we eat really is." Before they leave the alimentary tract the foodstuffs which we eat are broken up into fragments that serve as the real food of the body. Complex carbohydrates are resolved into sugar; fats are split into glycerol and fatty acids; proteins yield an aggregation of characteristic substances. Indeed, the main function of digestion is to put these comparatively simple "building stones" at the disposal of the internal tissue cells, so that they can select or further rearrange them as the special functions require. Whether it is meat or cereals that we eat is, after all, largely a matter of indifference, for they all furnish similar digestion fragments, so long as the digestive processes perform their duty.

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**Radium.**—Kemen, in *Zentralblatt für Innere Medizin*, March 2, 1912, reports results of his use of radium in a series of cases, given internally and by inhalations. He was able to recognize a progressive storing of emanations in the blood during inhalation; they proved equally strong through the entire period of the inhalation and amounted to one-fifth of the quantity present in the inspired air. Fifteen minutes after ceasing the inhalation no appreciable strength of the emanations remained in the blood. After a single dose of radio active water taken internally the emanations could be detected in the blood for two and one-half to three hours. With the latter method the strength of the emanations proved to be far greater than by the inhalation method.

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**Tincture of Digitalis.**—A. Goodall, in the *British Medical Journal*, April 20, 1912, concludes from investigations that nearly 50 per cent. of samples of the tincture of digitalis made by manufacturing pharmaceutical houses showed a variation from the standard potency. The limits of this variation were from 275 per cent. over strength to 40 per cent. under strength; that the

effect of a dose of 10 minims might be that of  $37\frac{1}{2}$  minims or 6 minims. He thinks that tincture of digitalis probably retains its maximum activity for a year, but then deterioration in potency to an important extent is likely to take place.

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**Acidosis and Diabetic Coma.**—Labbé, in the *Presse Médicale*, April 3, 1912, in discussing the theory of the causation of diabetic coma being an intoxication by betaoxybutyric and diacetic acids notes how some such cases have been relieved by alkaline treatment, and expresses his belief that there is a preliminary stage of acidosis which is amenable to alkalis. When true coma follows, and is characterized by a steady and progressive destruction of bodily nitrogenous substances, a polypeptic intoxication, with elimination of ammonia and amino acids, it resists all treatment and is rapidly fatal.

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**Deodorization of Feces in the Sick Room.**—Czerny, in the *Berliner Klinische Wochenschrift*, Feb. 26, 1912, states that he has found Ulenhutes' method for the deodorization of feces with antiformin very good. The receptacle should contain about 50 C. cm. antiformin solution, which will make the contents entirely odorless. He also found that infants' diapers immersed in a five per cent. solution of antiformin became odorless.

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**Cerebrospinal Meningitis Caused by Acid in the Blood.**—Hall states in the *Boston Medical and Surgical Journal*, May 2, 1912, that an etiological factor in the production of cerebrospinal meningitis is an excessive acidity of the blood. In this respect meningitis bears a striking resemblance to rheumatism. Both diseases were equally prevalent in Texas during the past winter.

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**Fuchsin.**—E. S. May, in *Journal American Medical Association*, April 20, 1912, reports conclusions from results of investigations with basic fuchsin that it is a germicidal agent more powerful than phenol (carbolic acid), of greater diffusibility and less toxic. It has a marked stimulative action on epithelial and granulation tissue growth.

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**Calcium in Mammalia.**—Lubenetzki, in *Roussky Vrach*, February 4, 1912, finds from a series of experiments made on animals and himself that in the lower animals the administration of calcium has a tendency to increase the elimination of uric acid and allantoin, while on himself the elimination of endogenous uric acid was diminished.

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**Chorea and Rheumatism.**—Fraser, in *The Practitioner*, March, 1912, declares that he finds from an analysis of 300 cases of chorea that the majority are closely associated with rheumatism, of which the chorea is a cerebral manifestation. He thinks it possible that all cases of true chorea are rheumatic in origin.

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**Sajodin in Arteriosclerosis.**—L. F. Barker (*Va. Med. Semi-Mo.*, Jan. 27 and Feb. 10, 1911) states that where iodine is not well borne when given as iodides in the treatment of arteriosclerotic patients, it may be administered in the form of sajodin in the same dose, 7 or 8 grains, 3 times daily.

## AT YOUR LEISURE

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### AN ENJOYABLE EPISODE

We were amused some years ago as well as greatly pleased and entertained. Amused at the discomfiture of an amateur violinist and entertained by a noted professional violin virtuoso and orchestral conductor. The whole affair was so unexpected, so impromptu that it was impossible not to thoroughly enjoy it. In an apartment adjoining one I occupied in a bachelor apartment house in New York lived a young man who persisted in torturing a violin nightly until my nerves rebelled and I was on the point of seeking to have him legally declared a nuisance.

On the particular night in question I had been alone, trying to get some work promised and long overdue out of the way; the violin was more rebellious to the torturer than usual, and I was almost in despair when my friend the virtuoso, violin under his arm, burst into my study to tell me of his highly successful evening at a concert from which he was then returning. He placed his violin, a precious Stradivarius, on a chair, helped himself to a cigar, and was about to seat himself for a recital of his evening's success and that of the others who took part, when my neighbor's violin, as an appeal to cease the torture, outdid its previous remonstrances. It was agonizing. My friend listened for a moment, went to the window, which was open, it being in June, came back to my table, looked at me, caught the look of pain on my face, understood, hurriedly took from its case the precious Strad., undid the covering as lovingly and carefully as a mother would take from her small child its wrap, gently put it in perfect tune and then standing facing me began to play. The whole range of emotions from appeal to pity, affection to violent denunciation was indulged. As one piece followed another, new sensations were given expression. One moment we were in an ecstasy, amidst the birds, flowers and trees; again we were in an agony of remorse, but peace followed and we could fold our hands, smile and be satisfied. And thus an hour—one glorious hour—in a life of varied experiences. We sat alone, with but the master and his willing, responsive, vibrating, tumultuous, sobbing Strad. telling us of—who knows.

The neighbor's violin was heard no more. It remained ever after, or while our neighbor, silent. Perhaps it could, under the master's touch, have told a story as strong and as sweet as the one we had just heard. Some day it may pass to other ownership and perhaps be restored to its proper sphere in the society of musical instruments, as is he who through good fortune becomes rehabilitated and again goes about with a proud spirit ever grateful, but tinctured with the memories of other and less pleasant days.

## LITERATURE

To speak of Literature, is to speak of the art that embraces and defines all the other arts, for, to paraphrase a famous phrase, "nothing human is alien to it."

Music, Sculpture, Painting, each has its own closely defined sphere—splendid and memorable in their appeal to the imagination and heart of man—but Literature has no less a field than humanity, no more confined a space than the visible universe and beyond, "where the eye of man hath not seen."

Its medium is the speech of man in written characters, its workshop the mind, and its material whatever has entered into the heart of man to conceive and utter. Its high priests are the Poets; for to the poets is given the gift of sight, the seeing eye and the tongue of fire "to body forth the form of things unknown and give to airy nothing a local habitation and a name."

In this order of prophets, the names that burn eternal in the sky, are Homer, Virgil, Dante, Shakespeare, Goethe,—each a master of the human heart and its sure interpreter. About them is clustered a choir of immortal singers of every tongue and clime.

In the literature of action are the dramatists; in the field of daily life and manners, the novelists—those makers of wondrous tales, dear to every generation, the delight of youth and the solace of age. As "man doth not live by bread alone," all these makers of the manna of the spirit minister to the deepest needs and joys of the race.

And to them is given as a reward, the imperishable crowns of glory. Out of their cups is poured

"The endless fountain of immortal drink  
Pouring unto us from the heaven's brink."

*John Jerome Rooney in "The Pleiades Year Book."*

## THE BANSHEE

The Rooster crouched in the old oak tree  
And he hid in its leafy gloom,  
While the pig uplifted a mellow voice  
As he mourned with the waning moon.  
'Twas the "Witching Hour," when horned owls hoot  
And the Banshee howled in sorrow:  
"Sure, I'm workin' to-night on a graveyard suit  
F'r Michael to put on to-morrow."

*Henry L. Sterrett in "The Pleiades Year Book."*

## THE HURRY OF THE TIME

Ernest Noel Perrin, in the New York *Sun*, writes: We Americans are accused of being always on the go, as if our object were, not to arrive but to be going, continually going. We reach the theater late—and leave before the play is over. We "run in" and see a friend, we "run out" to lunch. We read the headlines of the



newspapers and glance at the pictures in the magazines. A craving for excitement, a restless energy drives us on. Hence the superficiality of our culture.

The truth is the whole modern world is affected by this tendency to "hustle." Pushing and shouting are in the air! We do as the other fellow does, or go him one better. The man who is on the job "gets there." Even the lazy negro "humps" himself. The rich man disguises his idleness by scrambling with the rest. Meantime poverty and discontent are marching under the banners of progress and revolution.

We live in a strenuous age. Service and efficiency are our watch-words. Every man's "hat is in the ring." We have a night-and-day bank which "works while you sleep." The college has shortened its curriculum. The moving picture show gives the play without the words. The short story is replacing the novel. Even the Bible has been abridged. Indeed, it is the *short cut* that wins. Therefore we buy, not substantial things which will last, but showy make-believes which are cheap. And how shall we enter the Kingdom of Heaven? By beating lustily at the gate and not taking "no" for an answer.

But there is another side to all this. Hurry is movement, as opposed to lethargy and stagnation. Much that we see and criticise is on the surface. If the habit of hurry makes slaves of men, idleness is a vice, and the parent of crime. Hurry, at its worst, implies mental incapacity—a fruitless appearance of activity, blind movement without direction.

The wise among us make haste by *losing no time*. They are thinking of the goal. Have you no time? Then what have you done with it? The employer lets the bustling clerk serve the hurried customer, while he himself is served by the steady man behind the scenes. We may do certain things at a white heat, but the masterpieces in literature and art are never produced in a hurry. After all, it is the quiet workers who are the backbone of the world. We do not see them or read their names in print, but we profit daily by their industry.

We cannot return to the simple life, but we can cultivate what Bliss Perry calls the "coherent life." Let us, at all events, preserve an appearance of calm. Because we are borne along with the current we need not be submerged. One becomes an expert swimmer by buffeting the waves, and the instinct of sportsmanship should make present-day life worth living. The fittest will surely survive, and if we ourselves go down in the struggle it will be because we are unfit.

## MISCELLANY

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### SEX DIFFERENCES IN BRAIN

*Crichton-Browne Tells why Women Think Quickly, Men are Originators.*—When Romanes, many years ago, showed by experiment that women can read much faster than men, whereas men have more decision of character, he supplied no explanation of his discovery.

Such an explanation, says the *New York Times*, was given by Sir James Crichton-Browne, in his Presidential address to the Child Study Society at the University of London.

In woman, Sir James said, the posterior region of the brain receives a richer flow of arterial blood, in men the anterior region. The work of the two regions of the brain is different. The posterior region is mainly sensory and concerned with seeing and hearing. The anterior region includes the speech center, the higher inhibitory centers, which are concerned with will, and the association centers, concerned with appetites and desires based upon internal sensations.

There is, Sir James thinks, a correspondence between the richer blood supply of the posterior region of the brain in women and their delicate powers of sensuous perception, rapidity of thought, and emotional sensibility, and between the richer blood supply of the anterior region in men and their greater originality on higher levels of intellectual work, their calmer judgment, and their stronger will.

A curious fact which Sir James brought out is that the differences between man and woman run through many details of their organisms. The crown of the female skull is less elevated than that of the male. The woman has a plantar arch flatter than that of the man, which accounts for her partiality for high-heeled shoes.

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### A TRIBUTE TO W. D. HOWELLS ON HIS SEVENTY-FIFTH BIRTHDAY

The real affair of the American case and character, as it met your view and brushed your sensibility, that was what inspired and attached you, and, heedless of foolish flurries from other quarters, of all wild or weak slashings of the air and wavings in the void, you gave yourself to it with an incorruptible faith. You saw your field with a rare lucidity; you saw all it had to give in the way of the romance of the real and the interest and the thrill and the charm of the common, as one may put it; the character and the comedy, the point, the pathos, the tragedy, the particular home-grown hu-

manity under your eyes and your hand and with which the life all about you was closely interknitted. Your hand reached out to these things with a fondness that was in itself a literary gift and played with them as the artist only and always can play; freely, quaintly, incalculably, with all the assurance of his fancy and his irony, and yet with that fine taste for the truth and the pity and the meaning of the matter which keeps the temper of observation both sharp and sweet. To observe by such an instinct and by such reflection is to find work to one's hands and a challenge in every bush; and as the familiar American scene thus bristled about you, so year by year your vision more and more justly responded and swarmed.

*Henry James in "North American Review."*

#### OUR FOREIGN POPULATION

The publication of the census of the foreign-born population of New York City shows that there has been a marked change in the character of the immigration within the last decade. It is mere matter of detail that the change is one from the north to the south of Europe, and especially of Russians, who are not altogether Europeans of either North or South. For this city the facts in these respects are as follows:

Country	1910	1900	Increases
Total foreign-born white..	1,927,713	1,260,918	666,795
Austria .....	193,203	90,476	102,727
England .....	78,119	68,721	9,398
Hungary .....	73,336	31,516	41,820
Russia .....	483,580	180,428	303,152
Scotland .....	23,098	19,827	3,271
Italy .....	340,524	145,429	195,095
			Decreases
Ireland .....	252,528	275,073	22,545
Germany .....	279,242	324,198	44,956

The percentage of foreign born now here is about 40 per cent., and it was nearly 50 in 1855. In that year the total population of this city was less than half the foreigners now here. Despite the decreases remarked above, there are 157,000 more Germans here now than then, and 10,000 more Irish. There are twice as many English and Scotch. But in 1855 there were no Hungarians, and but a few hundred Austrians, while Russians numbered just over a thousand. In those former days Canada and Northwestern Europe supplied almost half the immigration, and now they supply about 15 per cent

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## ORIGINAL ARTICLES

### SOME PHASES OF THE TUBERCULOSIS QUESTION\*

By J. GEORGE ADAMI, M.D.

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#### PRESIDENTIAL ADDRESS

Even upon so large a subject as the campaign against tuberculosis, with all its issues and side issues, there is a limit to what can be said on the subject that is not absolutely commonplace. My only consolation is that, after all, the saying of something fresh is not a necessary function of the presidential post. This year, in particular, I can rest comforted in the assurance that aspects of the tuberculosis problem of the first magnitude and primary importance here in Toronto will be brought before you by the foremost authorities of this continent in these especial branches. I take it, that the great problem which you, in this great city of Toronto, have before you is the part to be taken by your municipality, by the Provincial Government, and by the charitable respectively, in coping with this disease. If that be so, then Dr. Herman M. Biggs, the medical head of the Health Department of the City of New York, can tell you of the wonderful results accomplished under his guidance by the greatest municipality of this continent, one of the greatest of the world. It is among the great triumphs of modern hygiene, this extraordinary reduction of mortality from tuberculosis in the City of New York during the past twenty years since Dr. Biggs undertook the campaign. The vast difficulties in his way, the teeming population of many millions, the unutterable congestion in the tenement house district, the extraordinary diversity of races and babel of tongues among the newcomers, were all opposed to a successful issue of the campaign. Despite all obstacles, however, in less than fifteen years the mor-

\*Read at the Thirteenth Annual Meeting of Canadian Association for the Prevention of Tuberculosis in Toronto, May 20, 1912.

tality from tuberculosis has been reduced by more than one-half, a record which almost approaches the miraculous.

But apart from the mere carrying out of health regulations this matter of tuberculosis has to be approached from the scientific side, or to speak more accurately, from the side of applied science. It is essential, that is, for us to be sure of our cases, and to make our diagnoses by the most modern and accurate bacteriological methods, and in this connection the university has come to the aid of the city and of the State. It used to be thought that the university had done its duty if in its laboratories it trained the physician. Dr. Frank Wesbrook has developed a better plan. As professor of bacteriology in the State University of Minnesota he realized that the duty of the State University to the State in the matter of hygiene went farther than this. He threw his laboratory open to the State Board of Hygiene, he became an active member of the Board; he cooperated so cordially with the Board that he made the University Laboratory of Bacteriology the place in which all the State Bacteriological investigations were conducted. If there was an epidemic in the State, the health officers made full bacteriological studies and controlled the situation so far as modern science is capable of so controlling. His laboratory made and supervised the distribution of sets of apparatus, which were placed at the disposal of the medical profession throughout the State for the diagnosis of diphtheria, typhoid, tuberculosis and of other communicable diseases. The University Laboratory became thus the center from which the physicians of the State obtained expert bacteriological advice regarding their cases, and rapidly Minnesota became the model upon which other States were formed in this direction. You have in Ontario and in Toronto a State University and an active Provincial Board of Health. I doubt not that Professor Wesbrook will give you cause to deliberate as to how you can best follow the example set by Minnesota.

And last, and far from least, we hope to hear from a leader in the National Council of Women of Ontario. Quite recently I was discussing matters with one of the leaders of public and social life in Melbourne, Australia, and he happened to mention the National Council of Women. "So you have such a council?" I remarked. "The National Council?" he replied, "Why, we can accomplish more and in more directions through them than by any other means. We men could not, for instance, make any advance in controlling the milk situation, we could not attend to the details, could not influence the individual milkmen. So we applied to the National Council, we supplied them with one of the University bio chemists to give



them a course of lectures on the nature of milk, and sure enough, thanks to the National Council, we have completely revolutionized our milk distribution, and possess now a model system. Men can supply the plant, can lay out the broad methods of the work to be done, but in attention to detail, in the conscientious carrying out of plans upon which depend the real success of the campaign, it is the ready coöperation of the women of the community which is all essential."

As this is the first occasion on which our association has met in Toronto, I think it will not be amiss to review briefly the objects of the association and to outline some of its work. Needless to say, the general prevalence of tuberculosis and its appalling death rate seemed to have been taken more or less as a matter of course until Koch's discovery of its specific cause, and the proof given that it was a communicable disease. Even then it was some time before the medical profession and the public at large realized that it was a preventable disease. With that realization a world wide movement began for its suppression. With these objects in view our work has been steadily progressing. Twelve years ago there was but one institution for the tuberculous in Canada, now there are over twenty. Then there were no dispensaries or visiting nurses, now there are over a dozen of the former and many of the latter. Lectures upon the prevention of this disease were unheard of, while now not only are our special lecturers working in this direction, but physicians and officials connected with various societies and health boards are performing this necessary work all over the Dominion. Literature is likewise being spread over the land by boards of health and local societies, as well as by our own association. Much of this work has been initiated and its success rendered possible by private philanthropy. This great movement would be far behind had it not been for the munificence of the late Mr. Hammond, Col. Burland, Hon. Mr. Perley, Mr. Lorne McGibbon, John Ross Robertson, McCrerar and the Hon. Adam Beck, to say nothing of those who have worked so assiduously for the cause.

Private philanthropy, however, is insufficient for the great task, and governments and municipalities must take more of the burden upon themselves. Ontario has legislated wisely in assisting local efforts by grants to any county erecting institutions for the care of the tuberculous and by a maintenance grant as well. This policy is being followed by Alberta, and also a bill is about to be passed in Nova Scotia upon the same lines. We believe that this is a local question and must be handled locally.

More than two years ago it fell to my lot, as president, by the in-

struction of our executive, to forward a circular letter to the various provincial authorities, as well as to the governing bodies of all general hospitals, throughout this Dominion upon another aspect of this question. As I have more than once pointed out, the great source of infection and of the spread of tuberculosis is what technically we term open cases, the cases in which the material from breaking down tubercles containing the infective bacilli is discharged into the open air. The great source of infection is, therefore, notably the case of advanced pulmonary or lung tuberculosis, with its billions of bacilli coughed up day after day. Where the patient is well to do, and can be accommodated in a separate room, the danger from such a case can be largely guarded against, for it is not a little remarkable how small is the radius around this coughing and expectorating phthisical patient by and which experimental investigation fails to detect the bacilli. But in your impoverished family, impoverished often through the enfeeblement of the bread winner affected with the disease, it is too often impossible to afford a separate room for the invalid. Too often other members of the family use and sleep in the room along with the patient, and insidiously but surely other members become infected. These are, as I say, the main foci of infection. It is these cases that economically inflict the greatest loss upon the community, for they perpetuate the disease. Segregate them and they become harmless. Up to recent times Canada has done little for cases of this kind. The general hospitals refused to take them in. The letter referred to above was an appeal for accommodation for this dangerous class of cases. The Mother country for long years has taken care of them, and as Koch, Newsholme and others have shown, it is in consequence of the plentiful provision of workhouses and other institutions throughout the land for such incurable cases that England enjoys her prominence among all countries of the world in the reduction of tuberculosis during the past sixty years. We urged our association that in districts in which there was no provision for the cases of this nature general hospitals receiving provincial grants for their maintenance should make reasonable provision for the reception of tuberculous patients, should afford special beds or wards for the same, failing which their government grant should be cut off. This matter has been taken into consideration in British Columbia, and has been acted upon there, and in other western provinces. I was, therefore, rejoiced beyond measure only last week to receive a copy of an Act relating to hospitals and charitable institutions, passed by your Ontario Legislature during the past session, to perceive that this Act contains a clause which goes even beyond what we ventured to ask for. I shrewdly

suspect that the Inspector of Public Charities of the Provinces, and who incidentally is a member of our executive, had a hand in the forming of the new Act.

There is much on which comment might be made concerning the progress of our campaign during the past twelve months. This progress, however, must only stimulate us to redoubled exertions. It has been clearly demonstrated in Ontario that concerted action can bring about a material reduction of the tuberculosis mortality. Having shown that the enemy can be beaten we must advance against him with increased enthusiasm by frontal, as well as by flank movements. Speaking of flank movements, if one is by nature an optimist, one is apt to look complacently at advances made, and to be blind to what is still defective. I have been rejoicing in the demonstration that has been afforded during the last score of years with increasing force that tuberculosis instead of being the hopeless disease it used to be considered, is in the vast majority of cases curable. I have rejoiced in the work of Brehmer, Trudeau and others, which have shown how fresh air and rest and good food will conquer the disease. This is so great an advance that one is liable to overlook or minimize the fact that the cure is very prolonged and imperfect to this extent, that although the lesions become encapsuled, the contained bacilli are not killed; so that if the health and vitality of the individual be depressed, it may happen that the bacilli take on youth again and the disease start up once more. Your tuberculous individual can never feel that he is altogether out of the woods; he must always be careful of himself. We are content, that is, with imperfection. Can we hope for nothing better, nothing more perfect?

The past few years have given us some very remarkable results in connection with another group of infections, those due to minute animal parasites. The tubercle bacillus, of course, is classed among the minute vegetable parasites. But with these diseases of animal origin, it has for long been known that quinine kills the haemoeba, the parasite of malaria. Those also who have had much experience in the Tropics tell us that, properly administered, ipecacuanha has a like specific effect upon the ameba of dysentery, and recently Thomas, a Canadian and graduate of McGill University, has demonstrated that atoxyl, an arsenic compound, kills the parasites of sleeping sickness, circulating in the blood and the trypanosomes, as they are termed, that set up a series of diseases in horses and other animals, following upon which discovery Ehrlich has elaborated other arsenic compounds, which in a single dose cure conditions of spirillosis, and destroy all the spirochetes in the organism.

Now, if this happens with animal parasites, there is, so far as I can

see, absolutely no reason why we should not discover other drugs which will have a like immediate action upon the bacteria of disease. As a matter of fact, there is a disease which, like tuberculosis, is caused by one of the higher bacteria, by an organism closely related to the tubercle bacillus. I refer to Lumpy Jaw or Actinomycosis, and this we know can be cured rapidly by large doses of potassium iodid. What we have before us is to investigate and investigate until we discover some drug or drugs which will surely cure tuberculosis. There is still much before us physicians and bacteriologists. Science, in fact, is never ending. And we from our side and you from your side have to continue with our shoulders to the wheel until tuberculosis is as extinct among us, or as nearly extinct, as is that plague of old times, leprosy.

There is always a sad side to these annual addresses, when it falls to the lot of the president to refer to the year's death roll. In previous years I have had to mention the names of the great pioneers in our campaign, men like Robert Koch and Arloing. On this occasion I cannot pass by the death of a humbler member of our body who has died, captured by the enemy against which he fought. There is no single individual to whom our Tuberculosis Association in Montreal has owed more for its success than to Maxim Mireault. He was, if you ask his rank, merely an inspector working under the Montreal Health Department. A life such as his distinguished by generous enthusiasm in his work we cannot afford to pass unrecognized nor unappreciated. Men like Maxim Mireault are the salt of the earth.

Disraeli once said: "Public health is the foundation upon which rests the happiness of the people and the power of the State. Take the most beautiful kingdom, give it intelligent and laborious citizens, prosperous manufacturers, productive agriculture; let arts flourish, let architects cover the land with temples and palaces; in order to defend all these riches, have first-rate weapons; fleets of torpedo boats; if the population remains stationary, if it decreases yearly in vigor and stature, the nation must perish. And that is why I consider that the first duty of a statesman is the care of public health."

May we not hope that these sentiments will animate the powers that be in all our parliaments, and when they do, we can assuredly look for a great decrease of the death rate from pulmonary tuberculosis, which is the greatest of all.

THE WORK AND METHODS FOR THE ALLEVIATION OF  
TUBERCULOSIS

BY C. A. HODGETTS, M.D., C.M., L.R.C.P. Lond., D.P.H., F.R. San. I.

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The crusade against the White Plague is one which interests all, and, therefore, at the present day is receiving more universal attention than perhaps any other branch of Public Health service. During the comparatively short period of time since the medical profession first realized the communicable nature of consumption, and it became known to the public that its progress could be stopped and its ravages abated, great activity has been shown in every civilized country by governments, municipalities, social workers and philanthropists to initiate and carry on works having for their object, not only the care of those suffering from the disease, but the institution of measures to prevent the spread of the infection. It will be noted that the center of activity has not been found within the official sphere, but rather beyond and without it. This is a movement where the initiative for work has not come from within officialdom, and hence we find that at the present time there are almost as many bodies of workers as there are methods of caring for the afflicted. This is not so much a fault as would at first appear, for the work accomplished by voluntary aid has demonstrated to the government of Ontario at least the necessity for financial assistance, and many municipal councils have found it profitable to further supplement local effort by annual grants.

The unfortunate feature about this financial assistance is that it is all devoted to one object, the sanatorium care of patients, as though this one feature of the work were the do-all and the end-all of the campaign. The fact is that the most expensive part of the crusade was very early brought into prominence and the public were taught to expect too much from the institutional care of the consumptive—they had already been educated as to the benefits of hospitals, both general and special, and so this branch of the work has progressed, not along the line hoped for by some, viz., that institutions would be erected in various parts of Canada for both incipient and advanced cases, these to be erected and operated by one Board of Trustees, more or less national in character, but rather upon the plan as laid down by the Legislature of Ontario by the Sanatoria Act of 1900.

This excellent piece of legislation, which was placed upon the statute book of the province somewhat in advance of the time, has fostered the idea of sanatoria being erected in counties or groups of counties by local voluntary aid organizations and operated by a board



of local philanthropists, but supported in part by municipal and provincial grants. In this way local effort has been recognized and assisted, and we find in Ontario to-day marked activity in evidence in many centers where, through the effort of local organizations, sanatoria have been erected and are maintained. In every case the appeal for assistance has been local in character, not going beyond the bounds of the area for which the sanatorium provides and in which the work will be carried on from year to year. In this manner there has sprung up a sisterhood of organizations, all working with a common object, each within its own municipal or district borders, not interfering with each other financially or otherwise. There has been no great expenditure by way of advertising or the employment of a staff of officers for organization purposes. All has been done silently and unostentatiously, and a study of the work already accomplished shows that it has been done so well that in every place where a sanatorium is found, it commands the support and confidence of the generous public as well as the grateful appreciation of the friends and relations of those who have received of the aid furnished.

As one who has been in touch with the work in different portions of the Dominion, as well as in the United States and Europe for many years past, the fact is impressed upon me more and more, that while the crusade should be nationalized in character by the Federal Government through cooperation with provincial governments and municipal authorities, yet the bulk of the work as far as it relates to the assistance which is to be given through what may be known as social workers and private benefactors, must resolve itself into local efforts. It is useless to expect that the whole of the charity cases be nationalized by funding monies in one common purse. This has been tried but has not proved a success. The very character of the work, the vastness of our country, with its diversities of interests and differing methods of operating voluntary aid for the carrying on of the ever increasing methods of dealing with the problem, make it quite apparent that such a scheme is impossible.

Each province of Canada must carry on the crusade in its own way and along the lines best suited to its own conditions. The methods of British Columbia for the solution of the problem are not those of Ontario, neither are the excellent methods of this province adaptable to the sister province of Quebec, while in the provinces by the Atlantic seaboard other methods may be deemed more suitable than those in operation in other parts of Canada.

It is essential, however, that sanatoria provision be made for suitable cases and that hospital accommodation be maintained for certain advanced cases of the disease. But how this outstanding feature

of the crusade is to be met and the work carried on so as to commend itself to those best able to help their poorer fellow citizens, is a problem which must be left to each section of the country to work out for itself. In every instance private organization must be so operated as to stimulate public aid, whether from municipal, provincial or federal funds, and in a similar manner these "Public Aids" must foster, stimulate and encourage the work of private philanthropy.

Is the financial assistance to be limited to sanatoria and hospitals? I am of the opinion it should not; on the contrary it should be extended to all of the recognized agencies known for the control and suppression of the scourge.

The success of an army in the field depends upon the support given to each branch of the service, and an army division is so apportioned that each is given its complement of officers and men for the efficient working of the whole division. To reduce any one branch is to rob the whole of efficiency, and so it is in the campaign with which we are now actively engaged. The army of workers is composed of many units, and each must be maintained in a state of efficiency while efficiency spells money. War with a visible foe costs both men and money; this war with an invisible foe means the loss of men, women and children, unless money is forthcoming and judiciously expended. In my opinion, the whole fight against the White Plague has been very aptly called a crusade, for like the early crusades of the single cross, it is improperly organized and many of the leaders, though well meaning, are like "Peter the Hermit," but ill suited to lead the crusaders of the double red cross on to a final victory. As to the leadership, that will be considered after we have discussed the various phases of the work and the methods suggested for carrying it on. These, of course, can only be dealt with in a general manner. The details to be adopted in this or that particular city or district must be worked out to suit local conditions. It must always be remembered that there are two distinct branches of the work, the medical and the social. It is one thing for the physician to diagnose and prescribe the treatment, but in the following out of the treatment much is involved, the patient, and often the family dependent upon that patient for its very sustenance, have to be considered. Often treatment and work have to be combined, in which case some one must secure the filling of the doctor's prescription; these and many other difficulties call forth the energies of the various bodies of social workers, no one of which can arrogate to itself all of the functions called for to meet the many different aspects of the situation.

As has already been stated, the sanatorium is only one phase of the work, and perhaps not such an important one as some of those interested therein endeavor to make out, and in this connection and in substantiation of this statement, one quotation by an eminent English authority will suffice. Dr. F. Rufenacht Walters, Physician to the Crooksbury Sanatorium, says:\* "Sanatorium treatment immensely benefits all cases of only moderate severity. But no working man can afford to stay until he is cured, and if he did, his continued good health would depend on satisfactory conditions of life, and how far he applied the lessons learned in the sanatorium;" and continuing the doctor says, in reference to after care: "Working class patients who leave a sanatorium in improved health often relapse on returning to the old unsatisfactory conditions of home life. Much more should be done to provide suitable accommodation for convalescents returning to work from a sanatorium, in the shape of night camps, where they may sleep in pure air and get wholesome food at a cheap cost, and of hygienic villages where all the usual occupations may be carried out under better conditions than before. In this way there would be some chance of the working class consumptive remaining long enough under favorable conditions to thoroughly improve his physique."

This eminent authority in mentioning night camps has but indicated one of the many methods that must be employed in the campaign; but with the camps there must be the providing of wholesome food at a cheap cost, which indicates another of the channels along which the social worker and the municipal authorities must combine forces; and, as if the crusaders had not already enough work to undertake, the doctor suggests another, "the hygienic village."

What then are the various recognized agencies at present in operation, having for their object the prevention and cure of tuberculosis? They may be classified as follows:

1. Action by the Social Health Authorities (Domiciliary visit).
2. Municipal Dispensaries { Hospital Outpatient Department,  
Tuberculin Clinic,  
Dispensary.
3. Tuberculin Clinic.
4. General and Special Hospitals.
5. Sanatoria.
6. Health Camps— { Day  
Night  
Open Air Shelters.
7. Farm Colonies—Hygienic Village.

\*British Journal of Tuberculosis, April, 1912.

8. The Preventorium.

9. Open Air Schools.

10. A policy of steady general improvement of the housing conditions of the people.

All of these agencies and many more are necessary, but it is essential that they should be in touch with each other as well as with charitable and other societies whose objects are perhaps more purely economic. In a country as vast as Canada, nearly all of these agencies are at work, but the chain is a long one and every district or municipality should supply the missing links, and these should be co-ordinated. The work requires the assistance of willing workers as well as money.

A recent writer, upon the subject of the "Control of Tuberculosis," A. Mearns Fraser, M.D., D.P.H., M.O.H., Borough of Portsmouth, has very tersely and properly stated that:\* "It is essential for the success of any systematized campaign against consumption that all the measures in one district should be coordinated, directed and controlled by one head, otherwise there must be overlapping and waste of energy. Further, this head should be the medical officer of health who has behind him the weight and prestige of the legally constituted sanitary authority, and who from his position is able to effectively combine voluntary and municipal effort. Independent voluntary associations can never act so effectively, because they neither carry the weight nor can they have the same knowledge of the various conditions relating to and influencing the prevalence of the disease in the district."

True, the work is a stupendous one, and in the carrying out of it many of our methods of so-called modern civilization will have to be revolutionized, for the White Plague is more peculiar to those nations who, in their higher civilization, have transgressed the divine laws of health and in the building of cities and towns have disregarded the very essentials of life, viz., light, air, pure water and food.

A few words may not be out of place in reference to what is known as the Tuberculin Dispensary, not that Tuberculin is an infallible cure, but that it serves a very useful purpose and permits of this form of treatment being administered to a certain class of patients who, for obvious reasons, cannot secure that of the sanatorium. The Tuberculin Dispensary is modeled after that of Dr. W. Camac Wilkinson, Kensington Rd., London, S. E., and already there are some seventeen now in active operation in Great Britain with many others in contemplation. The doctor, in his Weber-Parkes Prize Essay, 1909, says, in reference to London, England: "If sanatoria were the best

\*British Journal of Tuberculosis, April, 1912.

and only means of dealing with the problem, London alone would need, not 800, but at least 8,000 beds for the work, and the cost of buildings would be £2,000,000 (\$10,000,000), and the cost of maintenance would be about £500,000 (\$2,500,000) a year. Even then in one year less than 50 per cent. of the cases could be treated." Then he continues in reference to Tuberculin Dispensaries: "In London we rent for £60 (\$300) a year a house where two doctors can easily treat 300 odd cases every year. Thus London would need 100 such dispensaries for dealing with all the cases. Two doctors specially trained in the methods of tuberculin treatment would be required at each dispensary. Allowing £250 (\$1,250) a year to each doctor, and £300 (\$1,500) a year for cost of tuberculin, we should be able to treat 300, even 400 cases, at a cost not exceeding £1,000 (\$5,000) a year. Thus the total cost of treating 40,000 cases in London needing assistance would be less than £100,000 (\$500,000) a year."

This feature of the work has no doubt come to stay, and it deserves our most serious consideration; apparently it is another link in the chain.

The Portsmouth Authorities opened a Tuberculin Dispensary last June, and the principal reasons influencing the Town Council were as follows:

(1) The results obtained from tuberculin treatment apparently held out greater hopes of success than those from sanatorium treatment, the latter having proved particularly unsatisfactory in dealing with consumptive patients from the working classes; (2) the expense of sanatorium treatment on such a scale as to deal with all the consumptives in the borough was prohibitive; (3) the dispensary system promised to have the important result that patients would present themselves for treatment before the disease had advanced too far for permanent benefit to be effected; (4) last, but by no means least, treatment in a large number of cases could be carried out whilst the patients continued at work, and so remained self supporting.

The dispensary building consists of a small one storied structure. It comprises consulting, waiting, and dressing rooms, etc., with a small laboratory attached. It is composed of a material known as "eternite," and costs £330 (\$1,650), complete, with electric light, gas, and water fittings. It is, of course, the center for the administration of the tuberculin treatment.

The dispensary is open every day of the week, and late on two evenings, to suit those whose work will not allow them to attend at any other time. Each patient has a stated time at which to come. By this means a crowd of consumptives in the waiting room is avoided and waste of the patients' time is prevented, an important



consideration seeing that so many are at work earning their living. At his first visit the patient is given a thermometer, taught by the nurse how to take and record his temperature four hourly on a printed card, and told to return in a week's time. During this period a trained nurse visits him in his home, to see that he understands taking his temperature correctly, and to advise him on various matters affecting his own well being and that of others in the same house. When he appears again he is thoroughly examined, and if tubercle bacilli have not been found in his sputum, or if the diagnosis is not certain, a "test dose" of tuberculin is administered subcutaneously. Provided the diagnosis is positive and there is no contraindication to treatment, such as a high temperature, tuberculin treatment is commenced. Patients who are too ill to attend for treatment at the dispensary, or who have a high temperature, are kept at home for a period, provided this is suitable, or are admitted into the municipal hospital, where it is usually found that four or five weeks is sufficient to bring them to a condition when they are fit to continue treatment at the dispensary. The average length of a course of treatment is about six months.

Working in cooperation with the dispensary, there is "The Care Committee."

Patients who, although well enough to attend the dispensary for treatment, are yet in need of food, clothes, or other assistance in order to enable them to derive full benefit from treatment, are referred to what is known as the "Care Committee." This is a very important auxiliary association in connection with the dispensary.

As to results, Dr. Fraser speaks as follows:

To talk of results when the dispensary has been in operation for less than a year is to invite the criticism that no results regarding the treatment of consumption can be accepted which have not been subjected to the only test of any value, namely, that of time.

In the first place, it has been extremely gratifying to find that so many of our patients have been steadily improving under treatment whilst still following their ordinary occupation.

Speaking generally, the results we have obtained so far at the dispensary could not be expected to be more encouraging, and they strongly indicate that this institution is going to play a successful part in controlling the consumption scourge. Statistics dealing with the treatment of consumption depend upon the consideration of so many factors that one has come to attach very little weight to many of them. I may say, however, that out of 184 patients (who have had more than a month's treatment by the end of December), 84 are steadily improving and 31 have been discharged free from all symp-

toms, as "disease arrested." Of these patients, 36 only were in the first stage (Turban), 47 were in the intermediate stage, and 102 were advanced or complicated cases; about 70 per cent. of the patients were sent to the dispensary by their own medical attendants. I would advise those interested in the subject not to rely entirely on statistics, but to take an opportunity of visiting a tuberculin dispensary and examining the patients for themselves; few who do so will fail to be struck with the remarkable results that are apparently being secured. One of the most constant signs of improvement is the increasing weight of the patients; 94 have shown this to a marked extent; of these, 24 were in the first stage, 20 in the second stage, and 50 in the advanced stage, the greatest gains in the three classes being respectively 11.20 and 23 pounds.

#### OPEN AIR SCHOOLS

In this respect Birmingham has, perhaps the best equipped open air school in the world. Uffculme is situated 550 feet above the sea level. Its buildings spread over  $1\frac{1}{4}$  acres of ground. The school is a model in every particular. It consists of a main building, which includes one class room, to be used in very bad weather; the teachers' and medical officers' quarters, shower baths and drill rooms; dining room and kitchen. In addition there are three class rooms (detached) open on every side but the north, fitted with folding glass doors, also a resting shed similarly open. The school accommodates 100 children selected from the weak and anemic of the elementary schools—the children traveling to and fro each day by train; they remain three or six months as their condition requires.

#### TUBERCULOSIS CLINICS (NEW YORK)

The whole of Manhattan is covered by a network of clinics by means of an Association representing State and municipal departments, clinics, philanthropic organizations, tuberculosis institutions and other organizations interested in the work. The actual clinics number 21, of which 5 are under the direct supervision of the Health Department, 3 with city hospitals and 13 with private institutions, but all are federated and work together. Each clinic belonging to the Association must comply with the following conditions:

- (1) The segregation of its tuberculosis cases in a separate class.
- (2) Maintenance of home supervision of all cases by a trained nurse specially assigned for this purpose.
- (3) It must limit its work to its own district and transfer outside cases to the district in which they live.

There is no further interference with their internal arrangements.

The function of the clinic is—to diagnose doubtful cases, administer medical treatment, supervise home patients, serve as a clearing house for hospitals and sanatoria and educate the general public.

Established in connection with these clinics, there have been established 3 special children's departments, 5 day camps for those needing sanatorium treatment, but unable to leave the city, and a number of night classes.

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## THE IMPORTANCE OF THE SO-CALLED PRETUBERCULAR STAGE

BY ROBERT C. PATERSON, M.D., *St. Agatha, Quebec.*

At the outset I wish to make it clear that I do not believe it possible to recognize a true pretubercular stage or to know whether or not a person is predisposed to tuberculosis until such time as they show symptoms of the infection. The bacilli may and probably do remain latent in the tissues for a short time, causing only a slight hyperplasia before producing specific tubercles, but in this stage there is no means of recognizing their presence clinically. This is the true pretubercular stage. There is, however, a stage in nearly every case in which the bacilli are localized, usually in some gland or group of glands, and from this focus they gain entrance to the blood or lymph stream, and by this means of conveyance they are brought to the lungs or other organ, where their existence is usually first recognized. This period, before the bacilli reach the lungs and become definitely localized there, is what is designated by the term "pretubercular stage," and could be more appropriately called the "prepulmonary stage." It is to this period in the development of tubercular disease that I wish to draw your attention.

The chief path of infection in pulmonary tuberculosis is still in dispute, the old belief that the bacilli gained entrance to the lungs by the air passages now being strenuously assailed by the adherents of the more recent theory of infection by the digestive tract. The first mentioned method, infection by inhalation, may be either direct or indirect, while the latter, or infection by ingestion, must be always an indirect method of lung infection. The infection of the lungs is not in many cases as simple a matter, pathologically speaking, as was formerly believed, and there may be an arrest of the bacilli at various points before pulmonary tuberculosis develops. The stopping places for the bacilli are the glands, usually either the bronchial or mediastinal, or in some cases the mesenteric.

The vital statistics of the various countries show that there is a

mortality from tuberculosis of approximately 10 per cent.; that is, one out of every ten people dies of infection with the tubercle bacillus. Our present-day experience shows us that of all cases of tuberculosis giving clinical symptoms, incipient, moderately advanced and advanced, there is approximately a 50 per cent. mortality, or, in other words, one out of every two persons presenting recognizable symptoms of tuberculosis dies as a result of the infection. In this way we arrive at the conclusion that 20 per cent. or one out of every five persons at some time or other in their lives have clinically recognizable tuberculosis. Now for the moment let us look at the results of autopsy examinations as regards the presence of tuberculosis, active, latent or healed. Nageli, of Zurich, in 1900 made the startling statement that 96 per cent. of a series of 500 autopsies showed evidences of tubercular infection. Burkhardt, in Dresden, gives 92 per cent. in 1,452 autopsies. Other investigators confirm these figures, while some find the figures too high, the variations depending on technique and on differences of interpretation as to what constitutes evidence of tubercular infection, but all agree that nearly all persons who reach adult life have been infected at some time or other with tuberculosis. As has been said in a frequently quoted dictum, "Am ende hat jeder Mensch ein bischen Tuberculose." These figures have been pretty well corroborated by various series of the more delicate tuberculin tests, which even in clinically healthy adults give a large percentage of positive reactions. What is the significance of these figures? This, that while tubercular infection is nearly universal in the human race, only approximately 20 per cent., or one out of every five people thus infected, develops clinical tuberculosis, and we can fairly conclude that the human race as a whole has a high degree of immunity to tuberculosis. I think that we can also say with reason that there is a stage in the process of tubercular infection in nearly all cases in which the bacilli are latent and localized before reaching the lungs and manifesting signs of pulmonary or general tuberculosis. This is the so-called pretubercular stage, and during this stage there may be symptoms which as a rule are unrecognized and untreated, and so being neglected, go on to the next stage, nearly pulmonary tuberculosis, consumption or phthisis.

The causes which are operative in the step from latency to activity are those which are so often spoken of as resulting in tuberculosis, namely, overwork, mental worry, excesses, acute illnesses, neglected colds, exposure to damp and cold, improper food and housing, poor hygienic surroundings, and so forth; in fact, anything which depresses the system. These are all contributing causes and so lower

the resistance that the ever-present tubercle bacillus becomes active. As a result of such conditions as those mentioned, we get a period of vague and indefinite general symptoms, which are the forerunners of definite lung trouble. During this period a correct diagnosis can often only be arrived at by the exclusion of all other possibilities. In other cases we reach our diagnosis by a careful study of the history of the patient, correlating this to the symptoms. The important points in the history to be considered are previous similar indispositions, susceptibility to various infections showing lowered general resistance, exposure to tuberculosis, family history with reference to tuberculosis, patients' occupation and general mode of life. The general symptoms of toxemia of a mild type are present in some cases without apparent cause. These are fever, malaise, loss of appetite, loss of weight and strength, languor, indigestion, sometimes diarrhea and tachycardia. Perhaps there may be only a general feeling of being under the weather, coming on without definite cause and recurring. A proneness to catch cold is not an uncommon history, or repeated attacks of bronchitis with negative lung findings. These last two symptoms are often caused by the irritation of enlarged bronchial glands. Such localization in the bronchial glands is very difficult to diagnose with any degree of certainty, but a patient with symptoms of pulmonary tuberculosis and without physical signs should suggest to us this possibility. A pleurisy, either dry or with effusion, should be treated with more respect than is usually given it, for in the vast majority of cases the so-called idiopathic pleurisy is merely a symptom and actually tuberculous and the forerunner of definite pulmonary tuberculosis. To any one who has taken the history of a large number of cases of tuberculosis, the fact that a pleurisy has preceded in a large per cent. can hardly have escaped notice. Whether scrofula is a distinct disease or whether it is always a manifestation of tuberculosis is still a disputed point, but every one must admit that a scrofulous child is one of the most favorable soils for later tuberculosis. Harbitz, who had made a study of this point in Sweden, states that the majority of scrofulous children in that country develop pulmonary tuberculosis in later life. Anemia with its accompanying symptoms may be the outward manifestation of a latent tuberculosis and should not be too lightly passed over with the assurance that six weeks of iron treatment will cure. We know that a certain number of cases of anemia in young girls are secondary to tuberculosis, and in every case of this kind presenting itself for diagnosis and treatment this should be definitely excluded by a most rigid examination. The disease described by Landouzy as typho-bacillose is very frequently



mistaken for true typhoid, and its real nature only suspected by the later development of pulmonary symptoms. In cases of atypical typhoid we should remember the possibility of its being an acute outbreak in a previously latent focus of tubercular infection. A certain number of vague muscle and joint pains, usually diagnosed by that most useful general term of rheumatism, are toxic in origin and may be due to the toxins of the tubercle bacillus. Enlarged tonsils and adenoids are in no small percentage of cases found to be the seat of tubercular invasion. If a child with enlarged tonsils or adenoids has periodic febrile attacks, or shows symptoms of mild toxemia, this fact should be remembered, especially if the child has been exposed to tuberculosis. Chronically enlarged glands in children are very frequently of tuberculous origin, and sometimes those which enlarge acutely are due to the same cause.

Thus it will be seen that while the symptoms are protean in character, and usually indefinite, they are clear enough to put us on our guard if we are on the lookout for them, and they should be recognized more often than they are, for it is in these cases that permanent good may be done and future trouble avoided.

The treatment is simple, and being simple, is as a result of this neglected, and is the same as recommended for pulmonary tuberculosis, namely, fresh air, good food and rest. Change of surroundings and freedom from worry, with an outdoor life, regular hours and meals, rest and supervised exercise, avoiding overdoing, and symptomatic treatment when called for, for a period of from six weeks to three months, will in the majority of cases prevent more serious trouble and make a healthy citizen of the patient: while nontreatment or misdirected treatment will not save the patient from what will probably at a later date be definite pulmonary tuberculosis, with a much longer period of enforced idleness and possibly permanent invalidism. That this can be done is proved by the work at Brehmer Rest and other preventoria. I have had the privilege of attending Brehmer Rest during the past winter in the absence of the regular medical superintendent and founder, Dr. A. J. Richer, and have been much impressed with its usefulness in dealing with this class of cases. With accommodation for thirteen patients only, in the course of a year from fifty to sixty can be treated, and in 90 per cent. of these permanent good done. The cry of all sanatoria is for early cases if results are to be obtained, but even in the most incipient six months or longer is necessary for arrest, while the so-called pretuberculars can usually be permanently benefited in a much shorter time, illustrating the old adage that an ounce of prevention is worth a pound of cure.

Ninety per cent. or more of humanity can be divided into four classes as regards tuberculosis: 1. Those who are infected without showing any evidences of it during life. 2. Those whose infection gives slight indefinite symptoms, easily recovered from with a few months of hygienic life. 3. Those who will recover with six months or longer of most careful treatment. 4. Those who will not recover, no matter what the treatment. These last need the care of the incurable homes. The third group are the sanatorium cases, while the second are the ones about whom I am to-day speaking, and who are usually neglected till they pass into the third or fourth classes. While in the second group treatment is inexpensive and of short duration, later on it takes more time and money, both for the individual and for our institutions. Much stress in the antituberculosis campaign has been laid on the dangers of infection and how these may be avoided, but the incontrovertible fact remains that practically every adult is or has been infected, and if some of our energies were directed to keeping these infected persons from breaking down and developing pulmonary tuberculosis and in raising their powers of resistance, the results would be even more gratifying than at present, and the mortality from tuberculosis would in a few years show a more marked decrease than it has during the past decade.

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### NOTIFICATION OF PHTHISIS

BY D. A. CRAIG, M.D., *Lake Edward, Que.*

If we are to successfully cope with such a difficult problem as is presented to us in the effort to eradicate or at least control tuberculosis, it is absolutely necessary that our measures should be systematized and placed upon a well-founded business basis. Recent investigations have demonstrated the immensity of the task, and the need for immediate and stringent procedure to combat the ravages of the disease. Our eventual object in this campaign is to leave no case of tuberculosis uncared for and no source of infection unguarded.

Individual philanthropic effort, while entirely commendable and of great value in a certain number of cases, cannot of a certainty go so very far toward the eradication of the disease. So long, however, as the public authorities fail to make proper provision, private philanthropy must be accepted, not only as a means of dealing with the disease, but of educating the authorities to a sense of their responsibility. There is not only a private responsibility on the part

of the physician, but a public responsibility on the part of the municipality, and also the provincial and federal legislative bodies. It is decidedly necessary to have a definite specification of the duties of the municipal Board of Health toward the consumptive, and the assurance that these duties will be fulfilled.

Registration of phthisis has not so far here in Canada received the consideration for which its merits would call. Although in certain instances we have the law upon our statute-books, that law has not, generally speaking, been properly enforced. The fact that the health authorities are notified of deaths occurring from the disease, serves for little if any purpose other than to supply statistics, and adds but slight assistance to the tuberculosis campaign. The living cases and not the dead are the most flagrant agencies for the propagation of the disease. It is well to remember that a large percentage of those suffering from tuberculosis do not die of it, but are ultimately carried off by some other ailment. This is a disease which is extremely apt to become chronic, and the afflicted individual may live for years constantly expectorating millions of bacilli. The necessity for systematic control is evident, and the first step in this direction is notification.

Notification means registration with the Sanitary Authorities of all cases suffering from tuberculosis. The registration may be made in several ways, through private physicians, hospitals and other public institutions, clinics and dispensaries, visiting nurses or laymen. The identity of the informant need not be revealed. Previous to the undertaking of definite proceedings, an inspector or nurse should visit the patient and learn the actual nature of his condition with a view to determining what further procedure is necessary. In most systems the finding of a positive sputum specimen at the laboratory is considered as a notification.

Many objections have been raised to notification, but these have been largely from a personal standpoint and have not taken into consideration the well being of the public. One of the foremost objections is that it would interfere with the confidential relations between the patient and his physician, and also that the family would be branded as tuberculous. This objection is largely done away with by the fact that in all well regulated sanitary departments such information is private, and in no way subject to public inspection. Should the attending physician request that no further action be taken in the case other than the required registration, the responsibility rests with the physician without interference from the sanitary department provided proper precautions are enforced.

It has been held that as tuberculosis differs from other infectious

diseases, being as a rule of such a protracted duration, no sanitary department with ordinary equipment could hope to handle so much work in detail. From the fact that such a large number of cities have adequately handled this question, it has been decidedly demonstrated that it can reasonably be undertaken by almost any organized municipality. Each member of the sanitary department should have his or her work definitely outlined and supervised. Thus a maximum of efficiency would be attained with a minimum number of employes. This number would naturally vary according to the hygienic conditions of the municipality. A separate problem must be worked out by each community, its solution largely depending upon the social status. In a well to do community as a rule, little is required to be done by the sanitary authorities, whereas in the congested poorer quarters of our cities and towns, where colossal ignorance of sanitation is displayed, stringent measures must necessarily be enforced.

The expense of conducting a well organized campaign has been urged as an objection. When one considers the economic aspect of this question, such objections are readily answered. From the report of the Royal Commission for the Province of Quebec, we have it estimated that this province alone loses several millions of dollars yearly as a result of tuberculosis. From the fact that the activity of tuberculosis is most manifest between the ages of twenty and forty-five, at which period the wage earning ability of the individual is greatest, we have as a result of the inroads of this disease, a large depreciation in economic value. All things considered, a well organized sanitary department would be a decided asset from a financial point of view to any community, and could not be considered as an unnecessary expense.

Having considered some of the objections which are raised, let us now turn to the advantages of a system of notification. Although he may not recognize it, notification is a boon to the individual himself. He is at once placed in a position to receive the benefits at hand for treatment in one of the various institutions for the accommodation of such cases. Should the case be suitable for a sanatorium, he receives the benefits to be derived from institutional treatment, also an educational training, and has, as a rule, to a certain extent, his wage earning ability restored. The day and night camps prove of great advantage to patients who have to follow their employment during the remaining part of the day. The hospital for advanced cases affords hygienic surroundings with a maximum of available comfort to the hopelessly afflicted individuals. Free medical advice is rendered available to those who otherwise would be unable to obtain it.

One of the greatest advantages of notification is that it converts the patient from a source of infection to a focus of prevention. Not only are we able to undertake personal preventative and curative measures, but the patient becomes a center for the detection of hitherto unrecognized cases. Through the agency of the visiting Health Officer or nurse, the physical condition of the other members of the family or intimate associates is investigated. In this way, any predisposition to the disease or existing disease, whether in its incipency or otherwise, is made evident. This influence is not only beneficial to the immediate family and associates of the patient, but affects the community and the public as a whole.

We have two types of notification, voluntary and compulsory. Voluntary notification has been used as a means of preparing public sentiment for the reception of compulsory notification. Probably the most efficient scheme of voluntary notification at present in force is that which is being carried out in Manchester, England, under the supervision of Dr. James Nevin. The Manchester system was first introduced in September, 1899. The city, however, had received considerable preparation for the introduction of the scheme before this time, by means of education in regard to the communicability of the disease and the dangers of infection. In this way the civic authorities were prepared to receive and sanction the scheme of the sanitary committee for voluntary notification of phthisis when it was submitted. This scheme comprised compulsory notification of all cases coming under the Poor law or associated with public institutions such as general hospitals and dispensaries. Notification in private cases was left to the discretion of the attending physician, who received a small remuneration for the case notified.

I have had the opportunity during the past year of visiting Manchester, and through the kindness of Dr. Nevin and Mr. Locke of the Sanitary Department, of observing the workings of this system. There are a few points to which I would like to invite your attention. First the evidence which has been obtained of direct infection. Secondly, the evidence as regards the spread of infection through houses or public buildings. A third point is the method of dealing with infected houses. Working hand in hand with the Tuberculosis Department, there is a Sanitary Cleansing Department whose duty it is to carry out an efficient cleansing and disinfection when required to do so. An endeavor is made to secure a thorough cleansing of the house by the tenants every three months, and so far this has largely met with success. A report of the actual condition of the dwelling is made to the Sanitary Department by the Inspector, who recommends the proceedings required to be undertaken. A letter is



addressed to the owner of the property notifying him of the fact that a case of consumption has occurred, and requesting permission to carry out the necessary disinfection. Should the landlord in any way oppose the cleansing of the property, such cleansing may be carried out under compulsion, but it is always considered advisable to have these measures executed with the good will of the owner. In some cases a complete renovation is required.

With regard to the actual disinfection and cleansing, for cleaning the walls in such cases as the Medical Inspector may deem it advisable, Esmarch's method of using dough for smooth surfaces is carried out, as they have considered that cleansing with bread or dough is more effective than spraying with disinfectant. The other method which has been advocated by Prof. Delepine is the application of a solution of chloride of lime of a known strength. Articles of clothing are disinfected by steam, books and boots, etc., by the formaldehyde method. Soft soap and water are strongly in evidence.

House infection, which has proven so prevalent in Manchester, without doubt extensively exists in our own cities, towns, and country districts. Why should we not be in a position to demand a bill of health of the sanitary authorities for each and every dwelling? As a rule the leasing of a dwelling is left in the hands of agents whose sole object is to rent the property for the highest possible figure and derive therefrom a good commission. The cleansing of the property is most frequently left in the hands of the new tenant, who knows little if anything regarding the previous occupants, except what he may learn from the wreckage left behind.

Manchester being a manufacturing center, a large percentage of the population are factory hands. The sanitary department have a card index indicating the number of employees who have developed tuberculosis in each of the large manufacturing concerns, or business houses. It is recognized, however, that it is well-nigh impossible to disinfect and properly cleanse factories. The department has requested permission to place placards, and to instruct the employees along hygienic lines. The number of cases in which the actual infection may be traced to the factory is exceedingly large. The prevalence of tuberculosis among those employed in offices or other indoor work, would lead one to suggest that large business firms be required to arrange for physical examination of their employees at stated intervals. Such an arrangement would not be a bill of expense to the firm, but on the other hand would in a short time prove a decided asset.

Voluntary notification, although incomplete, has in many instances proved of great value, especially as heretofore mentioned, in educating the public for the reception of the compulsory system. Under

such a system, the physician should not notify private cases without first placing the matter before the patient and receiving his consent. In this way the interest and confidence of the public may be gradually obtained, and the need for a more widespread system demonstrated.

As an example of a well organized system of compulsory notification, one cannot do better than to consider what has been done in the city of New York, where such a system was introduced in 1897, following a period of four years in which a scheme of voluntary notification was carried out. Owing to the cosmopolitan nature of the population, the work in such a city as New York is necessarily of a very extensive nature. The organization, however, has been excellently effective, and has been improved from year to year, as the knowledge of existing conditions has increased.

Some estimate of the actual work accomplished may be gained from the fact that while in 1881 the death rate from tuberculosis was 4.27 per 1000 inhabitants, in 1910 it was 1.81 per 1000, which is a reduction of 55 per cent. in mortality. The city has been divided into tuberculosis districts, in each of which there is a clinic with an organized staff of physicians and nurses, who have under their control all cases in their district. The work of the visiting nurse is very important. The patient is for a time placed in what is termed the Sanitary Supervision class, and frequently visited. Having learned the proper hygienic precautions, the case may be transferred to the Observation class, on certificate of the medical chief of the clinic. In this latter class, visits by the nurse are not necessarily so frequent. Should it be found, however, that instructions are not being followed, a transfer back to the Supervision class may be made.

The Hospital Admission Bureau plays an important part in the system, as it constitutes a center for the admission of patients to the different available institutions, thus keeping the Department in touch with these institutions, so that advantages of treatment may be offered at the earliest opportunity to the most deserving cases. The mass of clerical work which necessarily results from such a system is divided among a number of offices, each of which is responsible to the head office of the division. On visiting the New York Tuberculosis Department, one is immediately impressed by the earnestness and vigor with which the work is carried on. There is published in connection with the Department a small paper, called "Communicable News," which is issued periodically for the information of the employees, and serves to hold their interest. Frequent conferences between those engaged in the work are a means of stimulation and of suggesting new ideas and improvements.

The compulsory notification system as introduced in Edinburgh in March, 1907, in unison with its excellent dispensary system so strongly advocated by Dr. Philip, has been a means of producing excellent results. In Norway compulsory notification has been carried out for several years. Last autumn the city of London saw fit to adopt the scheme.

Notification of phthisis constitutes one of the important links in the chain of coordinate effort which must of necessity be carried out if we are to attain success in the tuberculosis campaign. It is, however, of little avail if the means are not at hand for caring for the patients once the cases have been recognized. We must have as well the dispensary or clinic, the sanatorium, the day and night camps, and accommodation for the indigent advanced cases. Education is one of, if not the greatest factor in the general treatment of tuberculosis. We frequently hear it said that the patients do not come to the clinics until their disease has become advanced. If the patient will not come to the physician, the only alternative is that the physician must go to the patient. This is only rendered possible through efficient notification.

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## TUBERCULOSIS IN ONTARIO, CANADA

JOHN W. S. McCULLOUGH, M.D.

*Chief Officer of Health.*

The population of the Province of Ontario is, according to the Census of 1911, 2,523,208. With the exception of that portion known as Old Ontario, lying along the Great Lakes and the St. Lawrence and which comprises but one-fifth of the 260,000 odd square miles of territory embraced in the Province, the population is small, there being but 240,362 people in the immense area known as New Ontario.

The climate of this immense extent of country varies greatly. The winters in the north and western portions are severe, the temperature reaching as low as 50 degrees below zero, Fahrenheit, in some places, and there are usually great depths of snow. In the southwesterly portion of the Province, along the shore of Lakes Erie and St. Clair, there is usually little snow in winter and the temperature is quite moderate. The low temperatures of the former are more readily borne because of the accompanying dryness, and it is a usual thing to hear in these regions—"The temperature may be very low, but one does not feel the cold as in the more southerly portions of the Province." The summer days, too, are long in the northern regions. The soil, where cleared, is most fertile and there

is an immunity from tuberculosis which, unfortunately, our cities and older portions of the Province cannot claim.

Up to the present year there has been no attempt to discover the number of cases of tuberculosis existing in Ontario. Legislation was passed in this year making this disease notifiable, and the accompanying regulations indicate how this is proposed to be carried out.

The system of Public Health organization in force in the Province consists of a Board of Health of seven medical men, known as the Provincial Board of Health, the Secretary being designated the Chief Officer of Health. He possesses complete executive powers in the absence of the Board, which meets at intervals of three months. This Board is advisory in character and assists the chief officer in determining the policy of carrying on public health work.

The Province is divided into seven districts, including five in the older and more settled portion of the Province, each having a population of from 352,000 to 362,000, and two in New Ontario, the unit of population being about 112,000 or 113,000.

There is for each of these districts a District Officer of Health. These district officers give their whole time to the work and are paid in the first instance by the Government, which in turn charges back the cost to the various counties embraced in the district. Where there are no organized municipalities, the Government assumes the total cost. The District Officers will be in charge of a chief inspector, who will advise and assist them in special cases. The District Officers will in turn have control of the local officers in their respective districts and will become responsible for health conditions and the reporting of Vital Statistics therein.

There are about 800 organized municipalities, each one of which is required to have a local Medical Officer of Health and Board of Health. In cities and towns of 4,000 population or over, the Board of Health consists of the head of the municipality, the M. O. H. and three resident ratepayers. In all other municipalities the Board consists of the head of the municipality, the M. O. H. and one resident ratepayer. The M. O. H., who cannot be dismissed except for cause and with the consent of the Provincial Board, thus becomes a permanent officer who must be paid a reasonable salary. He is the chief executive officer of the local board.

All health officers, be they local or district, are required to attend an annual conference each year, the expense of the local officers being borne by their respective municipalities.

While there has been up to the present time no system whereby the total number of cases of tuberculosis in the Province could be ascertained with any degree of accuracy, the *deaths* from this dis-

ease have been pretty carefully recorded and the figures representing these deaths at the various ages are herewith given.

## DEATHS IN ONTARIO FROM TUBERCULOSIS BY AGES, 1903-1911

YEAR	Under 5 years						10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-59	60-69	70-79	80 and over	Not given	Total	Total from all causes
	0-1	1	2	3	4	5															
1903.....	140	66	31	16	14	55	78	255	415	358	281	227	182	141	209	167	51	13	24	2,723	29,664
1904.....	7	52	26	9	17	52	78	278	417	409	320	267	211	163	257	175	104	13	21	2,877	31,990
1905.....	0	55	31	21	18	47	85	266	424	389	277	232	180	161	212	144	79	16	30	2,667	31,371
1906.....	251	72	23	14	14	38	74	234	362	362	342	262	201	106	228	169	66	19	14	2,911	32,782
1907.....	74	41	27	20	15	44	62	206	745	....	499	....	311	....	227	173	64	9	13	2,530	33,502
1908.....	68	46	20	13	13	43	67	216	764	....	479	....	315	....	217	136	70	14	30	2,511	32,714
1909.....	47	27	25	9	15	54	54	179	687	....	487	....	290	....	222	163	66	15	38	2,378	32,628
1910.....	38	35	19	15	6	36	55	184	652	....	463	....	293	....	222	160	71	18	21	2,291	33,593
*1911.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2,253	34,235
	625	394	202	117	112	369	553	1818	4466	...	3148	....	1983	....	1794	1287	571	117	194	23,241	291,779

\* Detail's not available at time of writing.



These show that, while the largest age group of deaths is from 20 to 24, inclusive, 30 to 34 is a close second, and that the period under 10 years contributes about 9 per cent. of the total deaths in the period of eight years. The figures show that no age is exempt.

One gratifying circumstance is a gradual reduction in the mortality during the last ten years. The following table tells the story for the last thirty years :

TABLE SHOWING DEATHS FROM TUBERCULOSIS, PROVINCE OF ONTARIO,  
1881-1911 (30 YEARS)

YEAR	Deaths from Tuberculosis	Decennial Census Year	Ratio per 100,000 of Population	Total Death from all Causes	Percentage of Deaths from Tuberculosis in Census Years
1881.....	2,446	1,923,610	127	22,821	10%
1882.....	2,591				
1883.....	2,667				
1884.....	2,506				
1885.....	2,499				
1886.....	2,573				
1887.....	2,556				
1888.....	2,551				
1889.....	2,417				
1890.....	2,503				
1891.....	2,379	2,122,716	112	21,558	11%
1892.....	2,592				
1893.....	2,552				
1894.....	2,379				
1895.....	2,472				
1896.....	2,922				
1897.....	3,154				
1898.....	3,291				
1899.....	3,405				
1900.....	3,484				
1901.....	3,243	2,184,144	150	29,608	11%
1902.....	2,694				
1903.....	2,723				
1904.....	2,877				
1905.....	2,667				
1906.....	2,911				
1907.....	2,530				
1908.....	2,511				
1909.....	2,380				
1910.....	2,291				
1911.....	2,353	(Est.) 2,239,621 2,523,208	102 93	32,628 34,235	6% 6%
Total.	83,124				

There was not much improvement during the first 20 years of this period, but it has been marked in the last decade and especially in the years 1905 onward.

In seeking the reasons for this gratifying reduction in the tuberculosis mortality in this Province, the largest portion of the credit

must, one feels, be given to the campaign of education which has been carried on in recent years by various agencies. Of these, the Canadian Association for the Prevention of Tuberculosis, the National Sanatorium Association, the Press, and the Public Health Exhibit of the Ontario Government may be said to have been the chief educative factors. Each institution established for the care of tuberculosis cases becomes a center of education, and the policy of the Ontario Government in giving aid to counties establishing institutions and assistance in their maintenance has been and will continue to be a valuable factor in prevention.

The grants made by the Ontario Government for the past ten years in caring for tuberculosis patients were as follows:

For the five years, 1900-1905....	\$ 20,438.60
For the five years, 1905-1911....	160,073.05
	<hr/>
	\$180,511.65

In addition, the Government in 1907 appropriated the sum of \$1,000 for a Tuberculosis Exhibit. This amount was in 1908 increased to \$4,000, which was further supplemented by \$1,000 for a Public Health Exhibit in 1911. For the year 1912 the sum of \$7,000 is set apart for exhibit purposes, and a Public Health and Tuberculosis Exhibit, including a moving picture show illustrating these subjects, travels about the Province and is shown at various fairs and exhibitions during the greater portion of the year.

The following figures illustrate the increase of work in the interest of victims of this affection in the last three years in Canada:

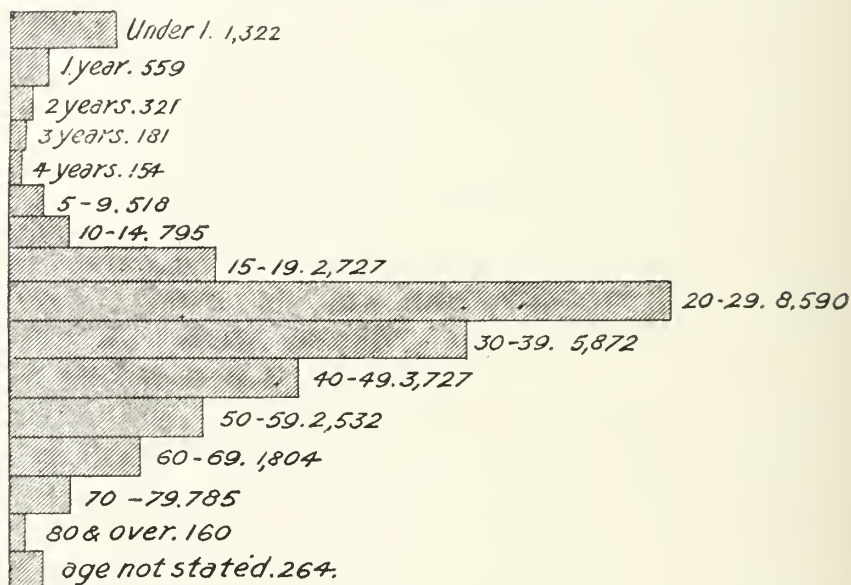
1908		1911
480	Institutions for Tuberculosis	1,000
3	Dispensaries	22
—	Children's Institutes	10
—	Open Air Schools	2
4	Visiting Nurses	16
30	Local Societies	80
—	Tuberculosis Commissions	2
\$3,000	Dominion Government Grant for Educational Purposes	\$10,000
\$1.50 per week	Ontario Government Grant for Maintenance	\$3 per week

The following diagrams illustrate interesting phases of the Tuberculosis question in Ontario:

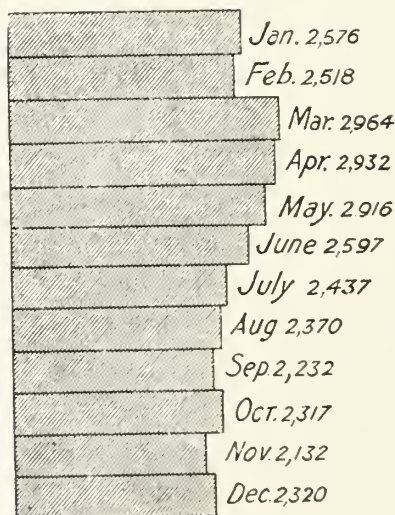
Deaths from Tuberculosis for 11 years, 1900-1910, showing sexes.

MALES	14,106
FEMALES	16,201

Deaths from Tuberculosis for 11 years, 1900-1910, showing ages.



Deaths from Tuberculosis for 11 years, 1900-1910, showing months.



## PROPOSED REGULATIONS FOR THE CONTROL OF TUBERCULOSIS, ONTARIO

1. Whenever any legally qualified medical practitioner knows that any person whom he is called upon to visit is infected with tuberculosis, he shall within twelve hours give notice thereof in the prescribed form to the Medical Officer of Health of the municipality in which such diseased person is.

2. This section shall apply to the medical superintendent or person in charge of any general or other hospital in which there is known to him to be a patient suffering from tuberculosis.

3. The Medical Officer of Health shall enter in a book to be kept for that purpose, in the prescribed form, the particulars contained in the notice, and shall further make a weekly report of all the cases so reported to him to the secretary of the Provincial Board of Health.

4. The Medical Officer of Health in cities, towns and villages shall keep in his office a map of the municipality and shall mark thereon the lot, street or other place where the case of tuberculosis or suspected tuberculosis occurred, and shall also make a further distinguishing mark where the death of a patient is reported to him.

5. Immediately on receipt of a notice, the secretary of the Provincial Board of Health shall, upon request of the Medical Officer of Health, mail to the address of the patient such instructions for the care and prevention of the disease as may from time to time be authorized by the Provincial Board.

6. The local Board of Health or Medical Officer of Health shall maintain whatever supervision they may deem necessary over the case and, if in their opinion the health of others dwelling in the same house or in personal contact with the patient is threatened, they shall order the removal of the patient to a hospital or sanatorium.

7. Every such patient shall remain in such hospital or sanatorium until in the opinion of the Medical Officer of Health he may safely be allowed to return to his former place of abode.

8. In case of an indigent patient whose removal has been so ordered, the expense of such removal and the cost of maintenance of such patient shall be paid by the municipality where the patient has had his usual place of abode, and if the patient has no permanent place of residence, or his usual place of abode cannot be ascertained, then the cost of his removal and maintenance shall be paid by the municipality whose Medical Officer of Health or local Board of Health has ordered such removal.

9. In the case of unorganized districts these regulations shall be enforced and carried out under and by order of the Provincial

Board, and the cost of removal and maintenance shall be paid out of the money appropriated therefor by the Legislature.

10. In the case of death, removal or recovery of a person suffering from tuberculosis, it shall be the duty of the Medical Officer of Health to provide that the residence of such patient shall be thoroughly and efficiently disinfected and renovated at the cost of the owner before any person is allowed to occupy such residence.

11. The Medical Officer of Health may, when he deems necessary, require that any premises occupied by a person suffering from tuberculosis shall be cleansed and disinfected to his satisfaction at the expense of the occupier, if able to bear the same, otherwise at the cost of the municipality.

12. All information furnished to the Medical Officer of Health or Local Board of Health and the entries made by the Medical Officer of Health, and all subsequent reports furnished with respect to any cases or suspected cases of tuberculosis shall so far as possible, be treated confidentially, and all persons having official knowledge of the case shall not divulge or permit to be divulged any of the particulars to any person except as authorized by the regulations.

13. The person affected with tuberculosis, or those in charge of him, shall on removal or change of residence at once report such change of residence to the Medical Officer of Health of the municipality in which such change occurs, and in case such person shall remove from one municipality to another municipality, he shall at once give notice thereof to the Medical Officer of Health of each municipality.

14. Upon the recovery of any person from tuberculosis, the attending physician shall report the fact to the Medical Officer of Health, who shall make record thereof, and such person shall thereupon be relieved of further liability under the regulations.

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*The continuation of the very valuable paper by Dr. Joseph L. Boehm on "The Modern Aspects of Etiology and Treatment of Syphilis" is unavoidably delayed until our August number.*

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#### SALE OF THE DIETETIC AND HYGIENIC GAZETTE AND ITS NEW EDITOR

We learn that the *Dietetic and Hygienic Gazette*, published in New York City for some twenty-eight years, recently changed hands, Mr. Frederic H. Robinson being the purchaser, and that Dr. George F. Butler, of Chicago, Ill., will be its new editor. The *Dietetic and Hygienic Gazette* has had a long and useful existence; long for the average independent medical journal, and a useful career in that it has well served the advanced physician, as well as the educated layman.

Dr. Butler has been identified with medical journalism, as editor and contributor; is so well known that his many friends both in and out of the medical profession will rejoice in his new association, which will give him a larger field and greater scope for his diversified talents. We wish the *Gazette's* new owner and Dr. Butler, its editor, unbounded success.



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## EDITORIALS

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### TUBERCULOSIS

In all civilized countries, tuberculosis in all its forms still bulks large from the standpoints of prevalence and deadliness. Statistics which are sometimes comforting and sometimes otherwise, tell us that in certain places tuberculosis has decreased, while in some centers of population, notably in London, the disease shows greater prevalence. On the whole, perhaps, consumption is less deadly than was formerly the case and is likewise less common. One feature of the crusade against the disease which is being so vigorously waged in all parts of the earth, is evident, that the medical profession and, to a lesser extent, the general public, now recognize the methods by which it can be best fought. At one time the sanatorium was regarded as the sole sheet anchor for the consumptive and these institutions were erected everywhere. After a time some began to question the wisdom of putting too much faith in one method of treatment, and it was suggested that other modes should be given a trial. At the present time, expert opinion on the subject is practically unanimous, and the sanatorium has been relegated to its proper position in the scheme of hygiene and treatment. Many now think that the dispensary is the most useful weapon in the fight,

for it must always be borne in mind that tuberculosis is essentially a city disease as well as a working man's disease. The ordinary sanatorium is of little or no use to the worker, for even if he can obtain admittance to such an institution, he will not, as a rule, become an inmate until the disease is far advanced, until indeed he is compelled to give up work. The city dispensary then, treats working people at their homes, acts as a clearing house, and performs the function of an educative medium and tends to prevent the spread of disease, the most important point of all. Of course, the ideal method of treating this disease, the only method in fact by which the disease can be stamped out, is to diagnose cases when in the incipient or rather, perhaps, according to Dr. Paterson, when in the pretubercular stage, and use the necessary hygienic measures, as well as isolate the advanced cases. The difficulties in the way of diagnosing incipient or pretubercular cases are almost insurmountable, but the dispensary, it seems, is the agency by which this result can alone be brought about. Accordingly there are three main means of dealing with the consumptive—by the dispensary, by the sanatorium and by the hospital for advanced cases. Each of these has its definite place in the system, and by working in coöperation should aid greatly in solving the problem of tuberculosis. There are various other important adjunct measures, such as notification, so ably discussed by Dr. Craig, in this issue, open air schools, camps and so forth. Dr. Adami has called attention to overcrowding and living generally in unhygienic conditions in cities, as the most potent causes of tuberculosis, and undoubtedly the hope of exterminating the disease rests chiefly in preventive methods. So long as city life is characterized by overcrowding, lack of fresh air and dirt, just so long will tuberculosis flourish. In this connection it may not be out of place to point to the conclusions reached by the British Commission on Tuberculosis with regard to the menace of infected milk. The commissioners state that in their opinion much of the tuberculosis of childhood is due to infected milk, and that even adults may be infected in the same way. Therefore, as pure milk supply as can be obtained appears to be an essential factor in the crusade against tuberculosis. The attitude of the medical profession, and of the community at large with regard to tuberculosis is the most

hopeful feature of the situation. It seems, speaking broadly, to be the earnest desire of the lay members of the population to join hands heartily with medical men in combating the disease. Money is unstintedly given to provide methods best calculated to bring about the most favorable results, and the prediction may be made with more or less confidence that slowly, perhaps, but surely, the enemy will be driven from its strongholds. Still there must be no slackening of endeavor.

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### IDIOSYNCRASIES FOR MILK AND EGGS

The food value of milk and eggs has been recognized since man has existed; milk for all young born of mammalians; eggs for all conditions of man. No two articles of food have been of equal value to the young, middle aged or aged; to the ailing or the robust, and yet, we know that both milk and eggs are unwholesome foods to a small percentage of all ages and conditions. This is not always due to impure milk or the uncertain age of the egg, for there are those in robust health who are made ill by partaking of either one or both, while the most delicate or ailing infant or invalid will be nourished by both. Why, has not been satisfactorily explained. To state that an infinitesimal few can not safely partake of a glass of good milk or eat a fresh egg without being made ill, have an idiosyncrasy, is an explanation which does not explain. No theory has been heretofore advanced which is at all satisfactory. In our judgment an explanation will be found in a synthesis occurring during metabolism. In specific terms certain elements in milk or eggs unite with other elements in the body to form toxic products. Why this is not true in more instances than are noted is not the fault of an unusual content in either the milk or the egg, but of an unusual product in the fluids of the system, causing the synthesis of a toxic albumen, which is absorbed and produces the untoward symptoms or conditions, and these products in the secretion of the alimentary tract may and usually are harmless in themselves, but combining with certain elements, possibly the albumen in the milk or egg, form products, very small quantities of which are poisonous. The element in the secretions is an unusual one either in the robust or the invalid and is unknown, but that this is the explanation we have long believed.

Examples of the varying toxic symptoms following the ingestion of milk or eggs might be cited, such as offensive stools or perspiration, nausea, cerebral symptoms, lesions of the skin, enteritis with the formation of gas and distension of the intestines, particularly the colon, diarrhea, etc., but these will be familiar to the physician. The only way to avoid these complications is to proscribe milk or eggs whenever they can be traced to either.

Numerous toxic albumens are known to chemists, some of which are highly toxic in very small quantities: toxins formed through the agency of microorganisms (proteids). Cheese poisoning, poisoning from ice cream, sausage, fish, clams, oysters are believed to be toxic proteids closely allied to the toxins of diphtheria, tetanus, etc. We have the food poisonings (paratyphoid) recently much discussed and numerous analogous symptom complex disturbances, which are as obscure as poisoning from milk or eggs due to a similar synthesis, either without or within the body.

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### EXPERIMENTAL POLIOMYELITIS

In the *Lancet*, February 17, 1912, Dr. Frederick E. Batten, London, discusses experimental poliomyelitis. The resistance of the virus of the disease to disinfectants is pointed out. Landsteiner and Levaditi have shown that 0.2 per cent. solution of potassium permanganate will kill the virus in one hour at a temperature of 39 degrees C., and that 6 per cent. peroxide of hydrogen at same temperature will destroy the virus in forty-five minutes. The virus is not killed by  $\frac{1}{2}$  to  $1\frac{1}{2}$  per cent. phenol solution. The mode of propagation of the virus within the body is thus described:

(A) By the blood stream. Injection into the blood stream gives rise to poliomyelitis.

(B) By the lymphatic system.

Leiner and Wiesner produced it by injecting the inguinal glands with virus. Flexner and Lewis injected monkeys with a similar result. The disease cannot be transmitted by blood obtained from paralytic men and monkeys. This statement, although true in the main, is not absolutely so. From human blood the disease has not been produced. The cerebrospinal fluid also is free from the virus, but Flexner and Lewis have shown by experiments on monkeys that

the virus can multiply in the cerebrospinal fluid before the outbreak of paralytic symptoms. The incubation period is subject to very considerable variations. The variations depend upon:

1. The method of inspection.
2. The amount of virus given.
3. The method of treating virus before injection.

Leiner and Wiesner showed that during the incubation period the virus spread to the nervous system before it was possible to observe any morbid manifestations in the central nervous system. The virus of poliomyelitis can invade the nervous system and multiply there without causing for a time any apparent trouble or distinct lesion. It is also a striking fact that in the majority of cases, in spite of inoculation of the virus into the brain, the disease commences by poliomyelitis, localized in the lower extremities.

On clinical grounds there is good reason to believe that an individual who has survived an attack of poliomyelitis is immune to a second attack. This has been shown experimentally.

Hexamethylenamin given by the mouth delays and may prevent infection (Flexner and Clarke). Anderson and Frost found that the blood serum in six out of nine suspected cases of abortive poliomyelitis was viricidal against the virus of poliomyelitis. Landsteiner, Levaditi and Wiesner have all shown that the virus is viricidal in vitro but not in vivo. The serum injected into animals has no preventative or curative effect. Levaditi has brought forward evidences to show that there are differences between the viruses obtained from different sources. So far, two breeds of virus are known, the virus of Landsteiner, Vienna, and that of Flexner, America. Flexner's virus is more virulent than Landsteiner's. It remains to be proved if the English virus differs from the above. No one in England has succeeded in transmitting the disease from an English strain to a monkey. Flexner and Clarke have implanted upon monkeys human virus. Levaditi and Landsteiner have found the virus in salivary glands. It has not been found in the saliva. Flexner and Lewis have found the virus in the mucous membrane of the nose of a monkey killed during the acute stages of the disease. Osgood and Lucas have found it in this situation six months after the onset of the disease. Leiner and Wiesner showed that the nasal



mucous membrane became infected on the second day after injection. The virus has not been found in the urine, feces, kidney or intestinal mucous membrane. Flexner and Clarke found it present in the tonsils and pharyngeal mucosa of a patient during the acute stages.

Neustaedter and Thro examined dust in rooms in which cases of poliomyelitis had been. They succeeded in producing the disease in a monkey with the filtrate of macerated dust in salt solution. They concluded, therefore, that poliomyelitis is propagated by dust and that the nasopharynx is probably the point of entry. Flexner and Clarke have shown that flies can harbor the virus in their bodies in a living and infective state for at least forty eight hours. All types seen in man have been produced in monkeys. The changes found in brain and spinal cord in experimental poliomyelitis do not differ from those found in natural infection.

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#### ANTITYPHOID VACCINATION

Metchnikoff and Besredka, his associate in the Pasteur Institute, have concluded from observations on the chimpanzee that vaccines made of dead bacteria will not immunize them; "vaccines from living germs will alone assure a solid immunity. The living typhoid bacillus, injected beneath the skin, is surely prophylactic against typhoid fever, but at the price of an intense local and general reaction." The living bacilli "sensitized" give but weak local reactions with general symptoms, including temperature, almost imperceptible; yet they assure immunity.

One may here, by way of parenthesis, acknowledge the usefulness of the anthropoid ape to the human family. To prove that a disease affecting humankind can be induced in the lower animals is easy; but to prove the converse is not easy, for obvious reasons. There are, however, a whole series of diseases which are common to man and the anthropoid apes, but which attack no other animal. Metchnikoff and his colleagues at the Pasteur Institute have proved this, and also that protective and curative results can be produced in this fashion. There is certainly a profound resemblance in the bodily chemistry—a physiological similarity no less striking than the anatomical resemblances so evident of man and these primates. The blood of every species of animal differs radically from that of every

other. The expert in murder trials, for example, has hardly been able to decide whether blood specimens are human or otherwise. But now it has been shown that when the blood, say of a dog, is injected into the blood vessels of another family of animals, such as the cat, the erythrocytes are destroyed and disintegrated, whereas, if the dog's blood be injected into another dog, no such disintegration occurs. To distinguish between human and canine blood one need *only* make a sterile solution of the blood stain and inject it into the dog. If hemolysis occurs the blood cannot be canine, if it does not the blood must certainly be dog's blood. The bizarre and somewhat humiliating fact is that the blood of the anthropoid ape gives the characteristic human reaction, which that of the lower monkeys and of other animals does not. This is of unusual value in experimentation on the ape, as to typhoid, tuberculosis and many other affections.

It is instructive to note that our War Department has followed the example of German, English and other governments, in that all officers and men in our regular army must be vaccinated against typhoid. Secretary Stimpson himself set the example. Major Russel of the Army Medical School in Washington prepared the "Typhoid Prophylactic," which was distributed to the various forts, posts and other military communities throughout the United States and its possessions; and 76,000 officers and men (all under 45) have been inoculated. The vaccination is done precisely as in small-pox. The general experience has been that the soldier lost not a single day's duty—did not even go to bed except at the usual time. For twenty days he has been watched carefully and has then been declared a typhoid immune. Of course those who unmistakably had had the disease were not subjected to the inoculation; whatever discomfort there was never lasted beyond forty-eight hours, and was in general less than that occasioned by smallpox vaccinations. Our army is by these means being rid of typhoid fever which up to recent years has ever been a far greater destroyer of soldiers' lives than the enemy's sword and missiles.

Now, since such immunity against typhoid is obtainable in military camps it ought to be quite as feasible in civil life, especially in large communities. Every urban typhoid epidemic has been succeeded by a secondary epidemic, evolved naturally from it. The secondary

phenomena might easily be prevented by prompt inoculation of all those living in and about the affected region. The practitioner should have at his disposal antityphoid vaccine, quite as he now has this prophylactic means against smallpox; and he should induce his patients to submit to the use of the former quite as is done now, as a matter of course in regard to smallpox. If the inoculations are made in the late afternoon it is very likely that any untoward manifestations will have disappeared by the following noon. Such vaccination should especially be submitted to by traveling business men who in the most devious and inscrutable ways are subjected to this purely ingestion infection. Typhoid is peculiarly a disease of youth and of early manhood or womanhood, and it might not be inadvisable for those young men and women who go to college and boarding school to submit to the preventative inoculations before leaving home. Tourists and vacationists may not only themselves contract this disease; but, what is even more important from the commercial viewpoint, they may become typhoid carriers, introducing the bacillus into regions hitherto exempt; all such should be inoculated. Physicians themselves, nurses, orderlies and hospital helpers should all submit as a matter of course. The protection is effective for two years; and the one inoculation may indeed protect through the life of the individual.

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### RESISTANT GERMS

Bacteria have extraordinary vitality. A culture of *B. coli* was seven years ago transferred by Busson to a glass tube filled with chemically pure water, which is germicidal in the sense that it affords bacterial life no nourishment. Yet in that period the bacteria, instead of dying, prospered and increased. The explanation given is that as soon as the water became tinged, however slightly, with alkali detached from the inner wall of the test tube it lost its germicidal properties; and these bacteria that had at first succumbed provided food for the survivors. "Bacteria of cattle disease" were 17 years ago preserved, baked and dried on silk threads. Supposed to be dead, they were transferred to a slab of gelatine; and it was found that after this long period of inactivity they soon took nourishment and were as virulently poisonous as ever.

## DIGEST OF CURRENT MEDICAL LITERATURE

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*The Relations Between the Human and Bovine Bacillus.*—German scientific men, as a rule, follow the view of Koch that bovine tuberculosis is a negligible quantity in respect to the spread of tuberculosis amongst human beings, while British investigators hold that this is by no means the case and that a considerable number of tuberculous subjects have derived the disease from infected cattle, of course, mainly, perhaps, wholly from the milk of infected cows. American investigators are divided in opinion on the matter, but the majority incline to the British point of view, while several of the foremost men of medical science of this continent are hard and fast adherents of the belief that tuberculosis may be and is communicated by means of infected milk. It is somewhat curious that so divergent views should be entertained by Anglo-Saxon and German investigators and this fact was again brought out at the recent International Congress on Tuberculosis in Rome. However, the findings of the British Commission on Tuberculosis, the final report of which was issued a few months ago, were discussed with interest at the Congress, and it was admitted even by some of the German delegates, that the results of the investigations were at least worthy of consideration.

Dr. G. Sims Woodhead, Professor of Pathology at Cambridge University, delivered at the Congress to which reference has just been made, a remarkably illuminating address on the relations between the human and the bovine tubercle bacillus. Dr. Woodhead was himself one of the British Commission, and from all points of view no one is better qualified to act as the exponent of British opinions concerning human and bovine tuberculosis. The conclusions of the Commission were as follows: 1. Whether tuberculosis in animals and man is one and the same? To this the commissioners reply, that the question of the identity or nonidentity of a case of tuberculosis in one animal with a case in another animal must depend upon the identity or nonidentity of the bacilli causing the lesions, and they point out that the characters which fix the species of pathogenic bacteria are (a) their morphology under the microscope; (b) their appearance in artificial culture, and (c) their pathogenic properties. Taking these three factors, they demonstrate that: (a), the human and bovine types of bacilli are morphologically indistinguishable, but that they differ appreciably in respect of their cultural characters and their pathogenic properties. As regards (b), they maintain that the only difference in respect of cultural characters between the above two types is that the human type exhibits great luxuriance of growth on whatever medium it is cultivated. The bo-

vine bacilli, whilst varying considerably among themselves in this respect, as a group grow much less luxuriantly on artificial media, though the gap that separates those of them that grow most abundantly from bacilli of the human type is certainly not a very wide one; (c) Guinea pigs, chimpanzees and monkeys are all highly susceptible to the attacks of both the human and the bovine tubercle bacillus, and, more important still, the disease produced in these animals, whether by one type or the other, is identical both histologically and anatomically. It is interesting to note that in cases of fatal tuberculosis occurring in the human subject, whether the disease was caused by the human or bovine type of bacillus, similar features characterized all; the clinical histories were alike, there was a fatal termination, and the lesions found after death were anatomically indistinguishable in the two sets of cases.

In short, there would appear to be only slight cultural differences on which to base the conclusion that the human and bovine types are not identical, and the Commission prefer to regard these two types as varieties of the same bacillus, and the lesions which they produce, whether in animals or man, as manifestations of one and the same disease. 2. Whether animals and man can be reciprocally infected with tuberculosis? Many species of animals can be infected by human tuberculosis, the most refractory are cattle, pigs and fowls. Mammals in general are very susceptible to infection by the bovine type of bacillus, whether such bacilli are derived from man or animals. It is interesting to note that the chimpanzee, an animal closely related to man, is equally susceptible to the bovine and to the human tubercle bacillus, and in view of this and other facts the Commission conclude that mammals and men can be reciprocally infected. 3. Transmission of tuberculosis from animals to men. The final conclusions on this most important point were as follows, that (a) a considerable proportion of the tuberculosis affecting children is of bovine origin, more particularly that which affects primarily the abdominal organs and the cervical glands; (b) both these forms of tuberculosis are often due to ingestion of tuberculous infective material; and (c) much of the tuberculosis of childhood must be ascribed to infection with tubercle bacilli of the bovine type, transmitted to children in meals consisting largely of the milk of the cow.

Woodhead suggested that if differences of opinion still exist, must it not be that special conditions prevail in certain countries, conditions that are not present in others? Different methods used in different laboratories may account for some of the different findings. Why should investigators in Great Britain be able to find two undoubted cases of "bovine tuberculosis" of a distinctly pulmonary type, and



these amongst only 25 hospital cases specially examined, or over 7 per cent., whilst all other recorded observations carried out on the same lines give only two other cases out of over 770 patients examined, or only 0.26 per cent. Woodhead thinks that the time has come to test one another's methods on a large scale. He, however, is certainly of the opinion, that as we go more deeply into the subject, and extend the scope of our inquiries, the bovine side of the question will come to take a larger and larger place in our scheme, especially, of course, in connection with surgical and abdominal tuberculosis, but also, in a minor degree, in pulmonary tuberculosis, not only in the child, but even in the adult. There is no danger of minimizing the part played by infection to and from the lungs. All are agreed on that, but Woodhead and others still maintain that the "bovine" aspect of the question must not be neglected either on the experimental, the clinical, or the preventive side.

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*The Albumen Test of the Expectoration in Tuberculosis.*—It goes without saying that the diagnosis of pulmonary tuberculosis is one of the most important that the practitioner is called upon to make. Further, it not infrequently presents considerable difficulty. That it is essential to the patient to know as soon as possible whether he be infected with the germs of tuberculosis is obvious. The early diagnosis too is a matter of much moment to the community at large. Tuberculin tests are not especially risky, but the patient has to be taken into the confidence of the physician, a procedure best avoided. Moreover, the results of tuberculin tests are by no means uniform nor conclusive. In the *Medical Press and Circular*, May 15, 1912, the albumen test, or Roger's method, is described by Dr. J. Levy-Valensi, Clinical Director of the Faculty of Medicine of Paris. According to Roger himself, the albumen test of sputum is not open to any of the objections which may be urged against tuberculin. It yields constant results, it exposes the patient to no inconvenience, and, finally, it is so simple as to be in the reach of all. The search for the presence of albumen in the sputum is not much more troublesome than its discovery in the urine.

The albumen test only requires a little water, a pinch of salt, and a few drops of acetic acid. The test is carried out in three stages, but the third stage, the search for albumen, is the only one which it is necessary to describe. Dr. Roger himself has recourse to heat and ferrocyanide of potassium. Boiling coagulates the albumen. If the solution is in water it is indispensable to add a pinch of salt in order to supply the water with the required electrolytes; if saline solution has been employed the addition of salt is unnecessary.

*Ferrocyanide of Potassium Test.*—In an acetic liquid such as the one in hand, this reagent yields a well marked precipitate in the albuminous solution. Trona makes use of trichloroacetic acid and Goggia of acetic acid. Only fresh sputum should be used and saliva should be excluded, because saliva contains albumen.

The conclusions reached by Levy-Valensi, from an experience of three years with the test, are as follows: 1. That in all cases of acute or chronic pulmonary tuberculosis, with the exception of granulia, the sputum in all stages contains albumen. 2. The albumen test yields trustworthy information earlier and more constantly than bacteriological examination. 3. The albumen test affords indications more constantly and more certainly than methods based on the use of tuberculin. 4. The albumen test enables us to detect the tuberculous nature of certain affections of the respiratory apparatus, bronchitis, emphysema, pleurisy, etc. 5. Every subject who presents albumen in the sputum is not necessarily tuberculous, but there is great probability of his being so, provided we have excluded pneumonia, broncho-pneumonia, pulmonary edema, gangrene, cardiopathies and renal affections.

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*Treatment by Tuberculin of Tuberculous Disease of the Eye.*—As a rule, a serious view is taken of tuberculosis affecting the eye. In some cases, indeed, as, for instance, massive tubercle of the choroid, advice is given to enucleate the eye. However, Dr. T. Harrison Butler takes a more optimistic view by far of tuberculosis of the eye, and is of the opinion that in perhaps the majority of cases the disease in this locality is amenable to treatment. In a recent paper contributed by him to the *Birmingham Medical Review*, May 15, 1912, he states that 1 per cent. of all cases of disease of the eye are due to tuberculosis, either in the form of local infection or of a toxemia. He is of the opinion that many cases of disseminated choroiditis, usually put down to syphilitic infection, are tuberculous in character, and the same is true in some instances of interstitial keratitis and of many cases of iritis, in which no definite cause can be discovered and which are frequently termed rheumatic. Moreover, Butler has found that treatment of tuberculosis of the eye by tuberculin is followed by very satisfactory results. The technic of treatment is as follows: A preliminary injection of old tuberculin is given to establish the diagnosis, in the meantime the patient being kept in bed and temperature taken every four hours. The dose of old tuberculin for this purpose is 0.001 c. c., the dose being twice doubled at intervals of a week if no reaction follows. It is interesting, and, perhaps, somewhat significant to note, that in one case a reaction was produced by bovine old

tuberculin when the human preparation had failed. The occurrence of a reaction seems to increase the efficacy of the subsequent dose of new tuberculin. According to Butler, treatment may begin with a dose 1/2000 mgr. of new tuberculin, and this should be repeated at intervals of a week, the amount being increased after a month has elapsed to 1/1000 mgr., and after a second month to 1/500 mgr., if no reaction be produced. If this occurs the dose should be diminished. During this course of treatment the patient should not be kept in bed, but treated as an out patient, the temperature being taken on the morning after each injection by a district nurse. The usual hygienic measures are carried out, together with the administration of cod-liver oil and iodide of iron.

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*British Departmental Committee's Report on Tuberculosis.*—An Edinburgh physician, Dr. Philip, is responsible for the initiation and evolution of what is now known as the Edinburgh scheme for treating tuberculosis. The scheme recommended by the British Department Committee is to all intents and purposes the Edinburgh, that is, Dr. Philip's scheme. In its main outlines the system is now generally understood. There are two units, the first the dispensary with its numerous ramifications, and the second comprising the various sanatoria and institutions for dealing with tuberculosis. The functions of the dispensary are to act as a clearing house, a center for curative treatment, for after care, and an information bureau. It decides to which part of the second unit a patient had best be relegated. The main feature of the report is that pervading it is the earnest desire to enlist the general practitioner in the work of treating tuberculosis. Perhaps, the tenor of most reports of this kind have not been in this direction, but rather to extend the domain of officialdom at the expense of the practitioner. However, in this report the value of the practitioner to the community has been realized, his cooperation is not only asked, but insisted on as an integral and essential part of the campaign against tuberculosis. This is as it should be, for unless the general practitioner is induced to interest himself in the fight with tuberculosis and to take an active and intelligent part therein the campaign is doomed to failure.

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*The Use of Tuberculin in Phthisis.*—At a meeting of the Oxford Medical Society held on May 10, Dr. W. Dugan discussed the use of tuberculin in phthisis, being a record of his personal experience, based on a number of cases treated by the intensive method. The aim of tuberculin treatment is to assist the natural method of repair; its action is to call forth a local hyperemia, to promote fibrosis of the dam-

aged area, and to stimulate the production of antibodies. In febrile cases, or in those with secondary infection, the action is bad. Hemorrhage is no bar to its use with due caution. The forms of tuberculin employed by Dulgan were P.T.O., P.T., and T.A.O.; beginning with P.T.O., he raised the dose by gradual increments up to i.c.c., subsequently doing the same for P.T., and sometimes for T.A.O. The results in a number of cases were highly satisfactory. Dr. Dulgan concluded his remarks by saying that in carefully selected afebrile cases treatment on this plan produced a sense of well-being in the patient subsequent to the injection and a drying up of moist sounds in the lungs; moreover this form of treatment is much deeper than sanatorium treatment, and the patient if at work suffered no interruption.

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*Causation of Psychopathic Maladies.*—Sidis, in *The Monthly Cyclopaedia*, April, 1912, points out the fundamental importance of fear as a source of these affections. The fear instinct may be associated with any of the body functions, and may give rise to subconscious states of which an abnormally developed suggestibility is characteristic. These conditions may, in turn, lead to a somopsychosis or psychoneurosis. That one patient should be a psychosomatic while another is a psychoneurotic depends on the character, temperament, and whole training of the patient, as well as the nature of the event that has aroused the slumbering fear instinct. Patients of an introspective turn of mind, with their attention directed to mental and social accomplishments, become psychoneurotic, while those not mentally introspective but having their attention and fears turned to their physical needs and bodily functions, becomes psychosomatics.

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*Digitalis in Heart Complications.*—Bayard Holmes, in the *Medical Standard*, June, 1912, declares that he prefers fat-free tincture of digitalis (Squibb's) when there is a good stomach, but where the stomach is not very tolerant is better pleased with digipuratum. He thinks that the increase of blood-pressure is directly due to the stimulation of the heart muscle. He does not employ the drug in aortic stenosis, nor in the functional diseases of the heart, always gives it alone, and has never seen any deaths that could be attributed directly to the use of digitalis. He does not employ it in Bright's disease or as a diuretic. In order to guard against possible ill-effects he gives the remedy in drop doses or administers it in tablets. It is indicated in heart failure without total broken compensation or heart-block. Contraindications: Heart-block, edema of the lungs, aortic stenosis, and narrow mitral stenosis.

## THERAPEUTIC PROGRESS

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**Thymol in Uncinariasis.**—C. Bozzolo, in the *Journal of the American Medical Association*, June 8, 1912, having employed this remedy continuously throughout the past thirty years, and not as a cure for ankylostoma only, considers as somewhat exaggerated the fears expressed by the greater part of those who, while admitting the utility and great superiority of thymol in comparison with other drugs, regard its after-effects as likely to be poisonous, and see danger in the administration of the remedy in large doses or in the contemporaneous administration of some alcoholic beverage, and who advises the substitution of small and repeated doses for maximum ones. In the several cases under his care during the time in which workers on the cutting of the St. Gothard tunnel, suffering from ankylostoma anemia, flocked to Turin, 12 grams of thymol were given in twelve hours, 2 grams every two hours, always well enveloped in capsules, and no serious disturbance was ever noted. In one solitary case throughout his long experience, in a woman, it is possible that thymol, administered in large doses, proved fatal; as a matter of fact, at the post-mortem examination of this woman there were traces of marked enteritis, which had, perhaps, been the cause of death. Before having encountered ankylostoma anemia—that is, before the year 1878—Bozzolo had already used thymol in diabetes with satisfactory results in diminishing the glycosuria, and with no serious after-effects. In these cases, however, the doses were restricted to 3 grams daily. Without, therefore, exaggerating the fear of the direct drawbacks of thymol in the treatment of hookworm disease, which in Turin has been widely employed in other diseases as well, it may be advisable to administer it in smaller doses (therapia sterilisans fractionata) than those originally proposed by Bozzolo in cases of weak persons who have been suffering for a long time, and when the treatment cannot be carried out under direct supervision. In the case of persistent enteric catarrh it is further advisable, whenever possible, to precede the treatment with a dry diet and the administration of tannic acid.

**Soaps and Their Effects on the Skin.**—In an article on the above subject by Frederick Gardiner, of the skin department, Royal Infirmary, Edinburgh, June, 1912, *Edinburgh Medical Journal*, are found the following summary of conclusions: All soaps, because of their chemical construction, must be irritant to the normal skin. The effect varies with the individual skin, and is more pronounced in senile and diseased skins. Cottonseed and other oils and rancid fats are probably largely responsible for the irritant effects of the cheaper soaps, which are much more commonly used now than in former years. The bactericidal power of soaps is nil; and even when combined with antiseptics are of no value as germicides. There may be some reason for the incorporation of sulphur and ichthyol into soaps because of their effects on the glands and blood vessels of the skin, but clinically, antiseptics, especially phenol, increase irritation. There is no scientific basis for the addition of extra fat (superfatty soaps) to soaps, for when such a soap is mixed with water the alkali will be freed and at once unite with the superfluous fat. Paraffine and benzine derivatives when incorporated with soaps for cleansing purposes, increase the harmful effect on the skin.

The minimum of soap should be employed and well washed off.



**Sodium in the Origin of Gout.**—S. Cohn, in the *Berliner Klinische Wochenschrift*, March 18, 1912, declares that experimental and clinical experiences justify the conclusion that gout is the result of a derangement of the metabolism of sodium and potassium, and suggests that as a therapeutic measure, sodium be dispensed with, while potassium, which counteracts the injurious influence of sodium, be given systematically as a remedial agent. He has himself taken this treatment and used it in treating his patient, giving it for weeks and months and never witnessed injurious byeffects, while the treatment showed a marked influence in subduing the gouty process.

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**Local Application of Salvarsan.**—Melun (*Ann. des Malad. vénériennes*, October, 1911) employs arsenobenzol, which he finds will keep perfectly well if made into an ointment with lanoline or vaseline. In cases treated with "606" by injection, he applies this ointment simultaneously to the chancre with excellent results. His formula is: arsenobenzol 0.6 gm.; vaseline 20.0 gm.; lanoline 5 gm. The drug acts as an antiseptic and cauterant, causing rapid healing of the sore. He also uses the drug in the pure state as a dusting powder, while in some cases crayons of cacao butter are useful. He regards local application in this way as a valuable adjunct to treatment by injection.

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**Treatment of Tetanus with Magnesium Sulphate, with Report of Three Cases.**—Parker, in the *Journal of the American Medical Association*, June 8, 1912, recites four very interesting cases of relief from tetanic convulsions and subsequent cure from the subcutaneous (as opposed to the subarachnoid) injection of a 25 per cent. solution of magnesium sulphate. Almost immediate relief from convulsions was experienced in each case. Doses of 2-8 dr. were given every two to four hours during the severest of the attack. There are some dangers such as toxic effects with respiratory and cardiac depression. These, however, can often be offset by the use of physostigmin.

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**Treatment of Pneumonia by a Polyvalent Stock Pneumococcic Vaccine.**—Charteris, in the *Glasgow Medical Journal* for January, 1912, reaches the following conclusions:

1. The administration of a stock pneumococcic vaccine had no marked effect upon the subsequent course of the disease.
  2. The mortality in the vaccine series (21 per cent.) was slightly higher than in the control series (20 per cent.).
  3. The early administration of vaccine did not abort the disease, nor prevent complications.
  4. Complications were relatively frequent in the vaccine series, viz.: one instance of meningitis, two of empyema, and one of hyperpyrexia.
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**The Influence of Sodium Chloride upon the Hydrochloric Acid of the Gastric Juice.**—Floersheim, in the *Medical Record*, June 8, 1912, relates some clinical experiments to determine the relation between ingested sodium chloride and the hydrochloric acid of the gastric juice. Patients with hyperchlorhydria were given a diet very poor in salt, and those with hypochlorhydria were fed salt freely both by mouth and rectum. The writer concludes that the quantity of sodium chloride taken into the body has no effect on the HCl content of the gastric juice.

## AT YOUR LEISURE

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### THE POETRY HABIT

BY DR. RALCY HUSTED BELL

I have some friends who pray and many who swear, and others who have the poetry habit. One of these is a professor in a great university. He reads, memorizes or repeats some choice bit of poetry every night—the last thing before going to bed. To my notion that is the wisest thing he does. He sows the seeds of rhythmic beauty in his soul in the cool of the day, when the heat of strife is overpast and the tension of all petty concern is spent. He bathes his thought in clear waters and lies down in a perfumed garden, which is sleep. This poetry habit is morally hygienic. It not only fulfills all the higher functions of prayer, but moreover it soothes the latest psychic element which has been acquired by man. It is as warmth and dew to the topmost blossom of the tree of life.

Now there are many ways of judging a person if one has the temerity to look one's own kind in the soul. Wherever the poetry habit is discovered there is sure to be found some excellence and nobility of character. It is a symptom of health, of good feeling, of aspiring ideals. At least, it indicates a longing for the higher life; at most perhaps it implies a realization of longings which ennoble and enrich the soul. But the poetry habit, with many, shades off into a mere fondness for verse—a liking for measure and rhythm, and a stumbling instinct for alliteration. And thus it is that the poetry which attracts one may serve as a scale with which one is measured. Almost unconsciously we esteem or despise another according to the company he keeps, the books he reads, the pictures he owns, and the things which amuse him. As unerringly may we judge our fellows by the poetry which they prefer. Repeat the poetry a man likes, and we know at once whether kindness or cruelty dominates his being. No great and tender soul, for instance, ever forms the habit of singing *Danny Deever*. Tell us the kind of poetry or style of verse that a man likes, and we shall know at once his esthetic high-water mark—his emotional elasticity or emotive rigidity—his temperament—his taste, his brand of culture and his scope of vision. There are those whose love of poetry carries them to Shakespeare—the fountain head. Having acquired the poetry habit under the magic influence of Avon, such Shakespearean students as J. W. Wainwright are never satisfied with other draughts of Hippocrene. And there are such men as S. E. Earp and T. E. Oertel who gather honey from every succulent flower—giving as they gather—spendthrifts who enrich their own souls through their esthetic extravagance. The love of poetry has roots which run deeper than we know and blossoms which rise higher than we have seen. The poetry habit may embrace consequences more remote than we have yet guessed.

And this reminds me of Miss Eva Ingersoll-Brown. Those of our readers who delve in Eugenics and especially in that branch of the subject known as geniology, or the science of genius, will be inter-

ested in the favorite poem and the views on poetry of Col. Ingersoll's granddaughter. Here is a young lady born with a taste for poetry in its purest, highest and best forms. In her we find not only a natural bent toward the noblest in art, but a strong creative ability which amounts to unmistakable genius. As a child her natural expression was decidedly poetic. In habit of mind she was always an idealist, and yet this predominating trait never interfered with the analytical characteristics of her thought nor with any of the methods of her cool reasoning. She was the first child that I have ever known to be enraptured with poetry of the most exalted kind. In reply to a recent inquiry I received the following spontaneous—unstudied note:

"In response to your delightful letter, it gives me great pleasure to put in a few words the chief impressions made upon my mind and heart by what I think I may truthfully state to be, on the whole, my favorite poem. Although when one tries to choose the one of all others—the elect in so vast and wondrous an effulgence of beauty and truth—one's brain may well be dazzled and overcome by a sense of its own impotence.

"Yet I think that now, even as when a very small child, the poem that most impresses me—the poem I most love, read and reread—oh, how many, many, happy times! until it has become a part of me—of the fibre of my being—yes, of my very soul—is Shelley's *Ode to a Skylark*.

Hail to thee, blythe spirit,  
Bird thou never wert.  
That from Heaven, or near it  
Pourest thy full heart  
In profuse strains of unpremeditated art!

"What infinite felicity of phrase! What perfection of feeling and expression! What subtle harmony of sound and sense, of thought and music! And again:

Higher still and higher from the earth thou springest,  
Like a cloud of fire the blue deep thou wingest  
And singing still doth soar, and soaring ever singest!

"Can there be conceived a more marvelous description of the ecstasy of flight and the aspiration of a free, sky-mounting soul? The spirit of this bard was indeed attuned to the 'music of the spheres'—the melody of cosmos—the grand, triumphal anthem of creation!

"What could exceed the poignancy—the almost painful intensity—of contrast between this passage and the previous?

We look before and after,  
And sigh for what is not;  
Our sincerest laughter  
With some pain is fraught;  
Our sweetest songs are those that tell of saddest thought.

"Both trains of thought so true! One voicing the beauty, the ecstasy—the other the agony and ineffable pathos of universal life. For, a poet, to be worthy the name, must feel with the fulness of his being the solemn and eternal tragedy of nature—the pity of old age and waning strength—the pathos of love's last and long embrace—the hideousness of death and slow decay—the littleness of man when

he must needs confront the elemental things. And it is precisely this inherent sadness in all life that gives to it a glory and a zest.

"'Were men incapable of suffering, the words right and wrong would never have been spoken;' and love, the crowning wonder of creation, would never have been born.

"I love the *Skylark* for the thoughts it gives to me—thoughts of manifold nature—thoughts from the 'glow-worm golden in the dell of dew to the love-lorn maiden in her palace tower;' and the 'star of heaven' banished by the perfumed breath of morn—thoughts that moan and sob and wail—thoughts that sing and out-soar heaven itself—thoughts that bud and blossom and bear promise of rich fruitage—thoughts that seek to fathom all the founts of truth, all natural, physical and mental laws—thoughts that try to solve 'the riddle of the universe,' the secret of the Sphinx, the depth and height and reach of dreams—thoughts that are in quest of paradise."

The almost infinite diversity in effect of the poetry habit is one of its impellent charms. No two minds react alike to poetic energy. In a vague way those of the habit regard poetic energy as elemental, just as love is elemental. And as love affects individuals differently in degree, attitude of mind and emotive vibration, so are individuals variously affected by poetry. The individual's reaction to elemental environment is determined by countless factors, many of which, although known to psychologists, remain as yet unstudied and in the henid state. But among such factors as have been studied, that of *experience* stands forth prominently. And behind experience, obscured by the phantasmagoric shadows of consciousness, looms the proteus fact of *capability*. Thus we have only proximal results from which to determine more distal causes. And we do not have to follow these very far to see clearly enough that only the soul which suffers may know spiritual growth—that only the intense soul of multifarious experience may know the full spell of poetry or feel all its power. The poetry habit, in the best meaning of the term, fixes itself only upon the souls that *feel*—those that have suffered and enjoyed the widest range of emotional experience.

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### SPRING GHOSTS

Is it the spring, or is it you,  
 Calling this winter day?  
 Your voice is soft as April's voice,  
 And seems as far away.

Are you some flower or some bird,  
 That tries to speak to me?  
 Or are you some sweet tiresome ghost—  
 Just haunting me?

BY RICHARD LE GALLIENNE

—*The Pleiades Year Book.*

## MISCELLANY

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### SANITARY ADVICE FOR SUMMER TOURISTS

W. C. Rucker, Assistant Surgeon General, Public Health and Marine Hospital Service, in Public Health Reports, Vol. XXVII, No. 21, writes that with the advent of warm weather and the consequent closing of schools, comes the thought of leaving the city for the cool country. The tired teacher and the overworked clerk, the restive school boy, anxious to leave his books for the great outdoors, the society matron, bored by the constant round of social duties, all long to get away from the city and to spend the summer in some shady rural retreat. Too frequently the realization of this happy anticipation is a hasty return to the city and a long stay in the hospital, to be followed, perhaps, by the death of some loved one. Much of this may be avoided if reasonable care is exercised in the choice of the place to spend the summer.

Ordinarily the questions which are asked when one is seeking for such a place include the character of the food and beds, and extent and nature of the social life, the temperature of the air, and the opportunities for bathing. All of these are important, but they are of secondary consideration as compared with the question of the healthfulness of the locality in which it is intended to spend the warm months. Therefore, in choosing a summer residence the first thing to have in mind is the sanitary environment in which this time is to be spent.

Every autumn there is a rise in the number of typhoid cases in the cities, and when this is investigated it is frequently found that they are simply cases which have been imported from the country. Persons have left the city in search of health, and, as they are accustomed to think that health may be obtained and maintained best in the country, they accept it without question as the place to get health.

Typhoid fever is a disease which summer tourists frequently contract; therefore it is always well to bear the avoidance of this disease in mind in choosing a summer residence. Typhoid fever is a disease of man. The germ which causes it leaves the body of the person sick with the disease, in his discharges, and when these are taken by a well person, a secondary case of the disease is caused. The germs of typhoid fever are carried from the sick to the well in water and food and by flies and the fingers. If one does not take into his system the discharges of another person having typhoid fever he does not get typhoid fever. At the present time typhoid fever is essen-



tially a disease of the country, because in the country the opportunities for the transference of the germs of the disease from the sick to the well are greater than they are in the city. Therefore, in the choice of a place to spend the summer one should inquire into the occurrence of typhoid fever in the community in which it is intended to stay, and one should determine the opportunities which exist there for the carrying of the germs of typhoid fever from the sick to the well visitor.

Since the germ is carried in the discharges of persons sick with typhoid fever, a careful inspection should be made of the facilities for disposing of human excrement. A place which has a surface privy to which the domestic animals and fowls have free access should not be chosen. Places which have a pit privy or a cesspool situated only a short distance from a well should be avoided. Places which take their drinking water from streams which receive the drainage of outhouses or from buildings should likewise be regarded with suspicion. Other things being equal, places having a water supply from artesian or deep-driven wells should be given the preference. Unscreened toilets, because of the flies which they breed, and because of the chance which these insects have to pick up the germs of typhoid fever therein and carry them to the boarder's food, are particularly dangerous. It is equally important, both for the comfort and the health of the guest, that the house also be screened.

It has been shown in the foregoing paragraphs how the fly may carry the germs of typhoid fever from the toilet to the kitchen and there infect the food which people eat. There is another way in which it may infect food, and this is particularly important from the standpoint of the child. The source of the milk supply should always be investigated in choosing a place of summer residence, and if it is found, as is too frequently the case, to be from dirty, fly-infested stables, in which dirty cows are milked by dirty hands, it is best to give the place a wide berth.

Another insect to be avoided is the mosquito. It used to be thought that malaria was caused by night air, but nowadays it is known that the only bad thing about night air is the mosquito which it contains. This insect infects people with malaria by biting them and injecting the germ as it bites. Therefore, when a place of summer residence is chosen it should not be an unscreened house, nor should it be in a swampy region, nor in a locality in which there are small pools of water well adapted to the breeding of mosquitoes.

Finally, if there is any doubt in the mind of the summer tourist let him consult the local health officer of the locality under consideration.

## WHAT THE SANITARY CRANK SEES

The *Monthly Bulletin* of the Indiana State Board of Health reports the following phenomena as having been observed in cafés by a sanitary crank. We commend the habit of observation to everyone interested in health, remembering, however, that it is not the mere fact of observing that will change conditions, but by getting awfully busy in a clean up campaign:

"I have seen a waiter wipe his sweaty forehead with the towel he carried on his arm for wiping dishes.

"I have seen knives, forks and spoons which had been used a short time before simply wiped on a not too clean tea-towel without even dipping them in water.

"I have seen tumblers, after having been used at table, simply wiped on a not too clean tea-towel without even dipping them in water.

"I have seen knives, forks, spoons and tumblers, after use at table, rinsed in greasy yellowish dishwater and then wiped with a tea-towel which was an approach to rubber roofing in color.

"I have seen restaurant kitchen help pass hands through their hair and then handle sliced bread.

"I have seen two mice jump out of a bread box and the sliced bread therein sent to the table as if nothing had happened to it.

"I have seen a waiter pick two flies out of a glass of milk with his fingers and then place it on a table to be drunk by a child.

"I have seen a cook at a nickel bound grill in white cap and coat, insert his finger in his mouth to scratch the interior surface and upon removal immediately pick up a nice porterhouse steak and place it upon the broiler.

"I have seen flies proceed direct from a spittoon to a bowl of berries on the counter which were waiting there to be served when called for.

"I have seen a cook change his shoes and socks in his kitchen and then, without washing his hands, proceed with the handling of food.

"I have seen a bowl of sugar spilt upon the floor, then picked up with the hands and carried directly to the table.

I have seen a basket of lettuce sitting on the floor in a restaurant kitchen and a dog belonging to the cook, but never mind—.

"I have already probably seen too much and will cease with the observation that we eat heaps of microbes without receiving any harm, and then again harm does result."

## BOOK REVIEWS

### **AUGUSTUS CHARLES BERNAYS. A Memoir, by THEKLA BERNAYS.**

C. V. Mosby Company, St. Louis, 1912.

Biography, like history, is a living thing only when it is an interpretation, and the interpreter essentially one of feeling: Biography records the adventures of a soul among facts. This being true, the first and most important work of the biographer should be to put his soul into the work. Some personal interest in and love for his subject are necessary to illuminate the pages; to portray a living picture that readers may see and know the subject of the work. A loving touch here, adjusting of drapery there with careful thought to the details of the setting and the biographer will evolve a portrait or a statue as true, loveable as will the painter or the sculptor. Fortunate, he who leaves behind him an interesting personality, a record of deeds of sufficient human endeavor to enable a writer to build a story, and thrice fortunate he who leaves a loving friend who can weave this story into a living, pulsating personality.

It was not our fortune to know Dr. Bernays during his life, but since reading the memoir we find ourselves thinking of him as one whom we knew but have lost. There is much in this volume which should interest the medical man but which cannot be given in review. We commend the work, and think that those who read it will receive pleasure and instruction.

### **LABORATORY METHODS, WITH SPECIAL REFERENCE TO THE NEEDS OF THE GENERAL PRACTITIONER.**

By B. G. R. WILLIAMS, M.D., assisted by E. G. C. WILLIAMS, M.D., with an introduction by VICTOR C. VAUGHAN, M.D, LL.D. Illustrated with forty-three engravings. C. V. Mosby Co., St. Louis, 1912.

Chemical and other analyses have always been excursions into an almost totally unknown portion of the world of science, when the explorer has been a physician, whose diploma dates back twenty years or often less. The general practitioner has been too busy to study technic and reactions or to learn their significance, and thus a most valuable aid in diagnosis has been to them a closed book. But we are developing in all branches of science, and he who would keep with progressive methods and benefit from advancing thought must equip himself for the greater demands of the day.

This is a welcome addition to the really useful books that are being of recent years offered to the physician. Here will be found technic so simplified, apparatus so modest in quantity and cost, described so simply and yet sufficiently needful, that a failure to comprehend will be an acknowledgment of stupidity. The book should be owned and studied by all physicians.

### **ECHOES OF PETRARCH: SONNETS OF LOVE AND INTERLUDES.** By GEORGE F. BUTLER, M.D. The Ralph Fletcher Seymour Co., Chicago, Ill.

Love is a theme that poets have dwelt upon from time without date. They have each undertaken to tell us what love really is, but he who knows not love is yet to be found. It is a theme we all like to dwell upon, to write about, but no one will ever learn what love is from the poets; love belongs to no one man, but to the whole world of life. What is love?

"Two souls with but a single thought,  
Two hearts that beat as one."

That is love. Get this book and learn what Dr. Butler, the brilliant writer, speaker, lecturer, and teacher has to say about love.

# SHAKSPERE'S Medical and Surgical Knowledge

By JOHN W. WAINWRIGHT, M.D., New York

Including References to Anatomy, Physiology, Medicine, Surgery, Obstetrics, Nervous and Mental Diseases, Therapeutics, Dietetics and Hygiene, Ethics, Jurisprudence, Toxicology and Pharmacy. Some 135 Quotations, giving Play, Act and Scene, with Explanatory Notes and an Introductory Chapter with copious cross index.

## REVIEWS:

In the volume before us the writer has, by his own road, come round to this identical point (that we do know a great deal of the real Shakspeare), and made it clear to his readers by a most abundant and interesting array of quotations from the whole field of Shakspeare's works that if he had not actually studied medicine, his mind was yet a storehouse of the medical knowledge of the day. In the scholarly preface to this delightful little book the author points out that the same may be said of his knowledge of theology, or law, or astronomy, etc. Many of the quotations are striking, but not the least interesting feature will be found in the running commentary following the quotations themselves. The frontispiece is an excellent photogravure from a photograph of the portrait which was the original of the Droeshout engraving in the first folio edition edited by Heming and Condell.—*New York Medical Record*, Feb. 15, 1908.

Dr. Wainwright has been delving for that in Shakspeare which refers to medicine. He has certainly gotten together a large and varied assortment of interesting quotations. Running comments add interest and aid in bringing out points or ideas that a cursory reading might fail to catch. Medical men who are lovers of Shakspeare—and there are few that are not—will find in these selections both amusement and instruction. The book is tastefully and beautifully printed and bound, and contains a photogravure reproduction of the Droeshout portrait of Shakspeare.—*Journal American Medical Association*, January 25, 1908.

Many of the quotations adduced to show the dramatist's knowledge of the physiological functions of the body are certainly very striking, and they are a valuable contribution to the study of the manysidedness of Shakspeare.—*The Hospital* (London), April 13, 1907.

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## ORIGINAL ARTICLES

### THE RELATION OF A DEFECTIVE HEART MUSCLE TO VALVULAR SYMPTOMS\*

By S. E. EARP, M.S., M.D., Indianapolis

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School of Medicine*

If the cardiac muscle is defective we endeavor to determine its needs and whether or not it is able to perform its duty if given help. It is a part of a great system meeting the requirements of the body. Certain disturbances are recognized as errors due to a cardiac abnormality. The heart must give and take. It must furnish pure blood so far as the functioning process is capable and render aid in getting rid of waste products. The heart may be overworked, which may first result in dilatation, then thickening of the walls of the organ; other cavities dilate and pressure increases.

There may be sclerosis of the arch and coronaries; this is not uncommon. The heart shows histological changes. Fatty tissue interferes with nutrition and functional capacity of the heart. A sound heart muscle is almost certain to furnish good compensation. Failure in any sense of the myocardium must necessarily result in a defective mechanism in other cavities which are more likely to be pathologic than functional. Concerning the possibility of a break in compensation or an insidious insufficiency Barker calls attention to the fact that the mitral ring may dilate and give rise to a relative mitral insufficiency associated with cyanosis and dyspnea and still later as the tricuspid dilates a relative tricuspid insufficiency, then there may be eventually general anasarca; consequently the conclusion that the compensating factors in valvular disease of the heart are in the main muscular factors, and failing compensation means a failing cardiac muscle. It is a knowledge of the functional possibilities of the mus-

\*Read before the Indianapolis Medical Society, June 11, 1912.



cular power of the heart that must necessarily be given the greatest importance. Relative murmurs are very frequently diagnosed other than such, and the autopsy only reveals the facts.

Often there has been a neglected pericarditis. The predisposing cause only may be present, and treatment of a cardiac lesion may perhaps be only prophylactic, yet it is all important, and to this too little consideration is given. Even a heart lesion in its incipency very frequently escapes attention and only the grosser manifestations must exist to attract our notice when the cusp of a valve shows a defect. I try to make my students understand that no one but an imperfect and neglectful practitioner will fail to carefully examine the heart of every patient with rheumatism, chorea, tonsillitis, syphilis, influenza or those pathologic conditions known to be often associated with heart lesions or are forerunners of them or make them possible.

Furthermore, in endocarditis in nearly every instance there has been an element of myocarditis preceding it. Whether the cause of a mitral murmur be directly attributable to rheumatism or otherwise, the heart muscle first shows the effect of the toxin, particularly if we have present one of the acute infectious diseases. A pathologic process of myocardium very often indeed prevents coaptation of the valves and hence a murmur is heard upon auscultation. It should not necessarily be an exaggerated one in order to be detected. Moreover a valve may do defective work and still not be a diseased valve; that is to say, only indirectly because the myocardium is the causative factor and behind this perhaps the disease of which it is a complication. Hence this implies that remedial measures are serviceable by treating the primary disease, for instance rheumatism, and secondarily such agents as will better the condition of the myocardium. I have known patients with endocarditis to live many years. I call to mind one patient who had a well marked mitral regurgitation for forty years, but compensation was good. It is very common, I believe, to diagnose a diseased mitral valve when the heart muscle is at fault. I fear we are now and then a little careless in our physical exploration of the chest. To hear a mitral murmur and let it pass at that is not enough; the size, the position, character of the pulse, blood pressure and other things concerning the heart and the blood vessels should be known. Too little consideration is given a murmur which is often relative. This condition is one for treatment. The cause is a remote one, perhaps, and what has been said heretofore concerning early treatment, early diagnosis or an "anticipating diagnosis" will be applicable. This is not in any sense far fetched; do we not use the antitetanic serum when a wound hints a predisposition to tetanus? A sore throat sometimes calls for diphtheria antitoxin. Perhaps these

are not perfect parallels, but they are significant. Hence, where there are conditions which favor endocarditis, treat these conditions and remove the predisposition.

It is surprising how many patients get well by giving due consideration to exercise, rest, diet and drugs. Many of these perhaps are myocardial and possibly many more should be recognized before they are so advanced that palliation is the only treatment. A damaged heart muscle or any of its parts may not be made new, but with care it is not unusual for the heart muscle to be benefited, so that it becomes competent to meet all the demands made upon it. Some one has said that if a man wants a cup of water and obtains it from a pump with a defective valve he does just as well as the man who needs and gets the same quantity from a new pump with all its parts in perfect order.

On the other hand functional and relative heart conditions are more serious than some credit them. Not a few have been surprised when death followed a diagnosis of relative or functional heart murmur; some of our bookmakers have had this experience. It is true, however, that a mitral murmur only rarely means a diseased valve, and we must look to the myocardium. While engaged in clinical teaching before a section of the senior class of Indiana University School of Medicine it was my good fortune during the past few months to unite forces with Professor Alburger, professor of pathology in the same school, and to study forty-six autopsies. The subjects came from various institutions, some were surgical, others medical. The record charts showed that fifty per cent. of the patients had had a mitral regurgitation, and yet in one case only was there any evidence to this effect presented by inspection of the valves, but in a large majority there was a pathologic heart muscle. This observation still further convinced me that a damaged heart muscle is very frequently the potent factor either directly or indirectly.

We must bear in mind as stated by Allbutt in Musser and Kelly's Handbook of Practical Treatment for 1911, Vol. II, that a severe endocarditis may pass through its phases without any local discomfort whatever; therefore the necessity for being incessantly on the alert. The first effect of the microorganism in rheumatic endocarditis is to erode the epithelium, therefore producing a lesion for repair; but this is not all; some deeper intoxication is followed by reaction in the texture of the valve, usually, of course, in the first instance in the more vascular valve and this attended by thromboses of the finer vascular network.

With this being accepted, it is easy to determine, after a consideration of the mechanism of the heart, its blood supply and all that per-

tains to it, including its anatomy and physiology, how a pathologic lesion of the heart muscle can in some instances affect any of its component parts. Perhaps influenza is one of the diseases predisposing to a pathologic heart. Not infrequently it comes unawares, on account of our inattention to case detail. Possibly muscular intoxication, or nervous paresis, or at any rate an infection is responsible. It is very true that influenza, as is the case with a few other diseases, has the faculty of rendering active a latent tuberculosis or heart lesion; but of the influenzal heart itself mention may be appropriately made. Allbutt contrasts influenzal cardiac poisoning with that of diphtheria, but it is more baffling in the former. He surmises that the derangement is not so much from a defect of muscle as the nervous endowment. No explanation is positively given for the altered heart chambers or what the cause may be of the anatomy of the oftentimes grave dilatation. In speaking of myocarditis, he shows that it is likely first to be heart muscle, then valve, not in words, but the reader with such tendencies of belief might regard it as an implication. For instance, he says every attempt to wean the patient from rest, to set him on his feet, aggravates the disorder; the rhythm of the heart, disturbed as it is, gets worse, and the quick, irregular, undulatory and diffuse impulse of dilatation becomes more aggravated, with a variable systolic murmur and, subjectively, with palpitation and more vague distress.

I fully appreciate that the soft murmur of acute fevers may be functional and not recognized as such, since it is not always an easy matter to determine the differential point as to whether the sound is in the locality of the aortic or mitral area, the latter indicating endocarditis. It is true that the accentuation of the pulmonary second sound and the character of the pulse and impulse of the heart might seem certain aid in the identification of an insufficiency, and yet unless great caution is observed there is opportunity for error in diagnosis and prognosis. Whatever improvement we expect we do not fail to keep the heart muscle in mind, for it is here we find the danger line.

Most text-books say endocarditis is characterized by the formation of small vegetations on the segments, opposed to the blood current, near the margin of the valve, forming a row of bead-like growths; then the absence of these shown at an autopsy would lead one to suppose that even in the presence during life of a well-established murmur, the case was not one of endocarditis; provided, however, that a blood examination was made to find the infecting organism plus the usual microscopical technic. If we eliminate the importance of the heart muscle and use the above as an infallible guide, it might require an autopsy to determine the correctness of a diag-

nosis. This description of a valve's condition in endocarditis we do not doubt, but we are particularly interested in the class of cases showing all the symptoms of endocarditis when an autopsy gives negative evidence. This only brings up the statement of a famous clinician that an abnormal heart before death may not after death present lesions to sanction the fact.

Walsh, in the *International Clinics*, Vol. III, 21 series, 1911, calls our attention to the fact that a loud murmur is usually a sign of a strong, vigorous heart muscle, and so long as the heart muscle remains healthy the prognosis is good. Often the disappearance of murmurs is much more serious than their loudness. With this in view a consideration of mitral stenosis should be given. In quoting Gerhard, he rather emphasizes that the heart muscle ranks first in importance. When his students hesitated in treatment or prognosis he said, Is the apex beat displaced? If it is not, then there is no lesion in that heart that is serious at the present moment, and there is nothing for which you are quite justified in giving heart remedies. There may be murmurs, there may be irregularities, there may be impurities of heart sounds, but unless the heart is dilated, it is doing its work well.

In the first instance, as our experience and that of some others leads us to believe conclusively, when the valve is deformed, if the heart muscle is good, there is a great degree of safety; while if myocardium and valve both show a defect, the prognosis should of course be guarded; in the second instance, the language is strong, and yet it evidences the important rôle played by a good heart muscle.

I am impressed with the author's repeated assertion that it is more important to know what sort of a patient has a heart lesion than what sort of a lesion the patient has. This is not by any means claimed as new doctrine. It simply suggests the influence over the mind of the patient whereby there is often a decided improvement, but there has not been sufficient time to elapse for the drug agent to act. The heart muscle and pulse and even the general condition of the patient shows a betterment.

In functional cases, mental therapeutics is one of the most important divisions of cardiotherapeutics. The advantage of mind influence need not be excluded in organic cases, for rest to body and mind is all important and has accomplished wonders. It is an auxiliary to drug agents, and perhaps the latter may at times be given undeserved credit. Every physician has observed the favorable results of suggestion, even if this term was not used. Many times an unruly heart muscle has been subdued and then an amelioration of symptoms has been observed. How often we note the damage done a patient by

the consciousness of his heart trouble. Ample proof is presented when we review our studies of the nervous system and its mechanism.

It is evident that a pathologic heart muscle may be largely responsible for a functionally disordered valve and sometimes a permanent disability. A sound heart muscle may atone for the defect of a part by compensation. An infectious agent may affect any portion of the cardiovascular system with an intensity toward myocardium and valves. This condition may be transitory or continuous, and the outcome mainly depends upon the influence of it and other governing factors on the myocardium.

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## PALPITATION OF THE HEART

By LOUIS FAUGERES BISHOP, A.M., M.D.

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By tachycardia we mean a considerable increase in the number of heart beats with a corresponding increase in the pulse rate. The number of heart beats in a healthy individual is from 65-75-80. In early life, that is, in early childhood, the pulse is 120-130. It gradually becomes less frequent, and in old age it is apt to be slower than in early or middle life. The average pulse rate may be said to decrease from birth to old age.

In clinical medicine, increased pulse rate is found in a good many different conditions. It is a well known accompaniment of febrile affections. Since the introduction of the clinical thermometer we have not paid so much attention to the pulse rate as was the custom years ago, before we had this means of measuring temperature. Of course, it is known that some fevers are characterized by a relative slowness of the pulse; this is true of typhoid fever.

However, I have no intention of simply dilating on the increased pulse rate found as an accompaniment of a great many diseases, but rather to refer to certain conditions of rapid pulse rate that occur as clinical entities, not simply as a part of the condition of a very sick patient.

I have observed attacks of tachycardia in typhoid fever, in anemia, and in tuberculosis. I have also observed it when a patient has been overdosed with the nitrites. Other observers have seen attacks in a good many other conditions, notably, in diphtheria, scarlet fever,



and malaria, and it has often been observed in septicemia and pyemia, in neurasthenia, hysteria, and in conditions of chachexia in general.

Tachycardia can be divided into several types. The first is a type which is best known as palpitation of the heart. This occurs in individuals who have a tendency to cardiac disease but who have not a frankly developed cardiac condition. However, persons who are subject to true attacks of palpitation are pretty sure, in the long run, to show manifestations of cardiac disease. I believe that attacks of palpitation at least show that the heart of such a patient is susceptible to cardiac damage. Such attacks are quite common in patients with true cardiac disease, whether valvular, or whether the valvular disease is associated with arteriosclerosis. Older people with arteriosclerosis very frequently have attacks.

An attack of palpitation of the heart, ordinarily, begins quite suddenly. The patient is going along very much as usual when suddenly there is a sensation in the chest, and the heart commences to beat rapidly to such a degree that the patient is conscious of it, and when the pulse is counted very often it is double the patient's ordinary pulse rate. However, the pulse is regular in rhythm, and in a case where there is no serious valvular or myocardial disease behind it, the pulse waves can be counted at the wrist.

These attacks are very alarming and naturally lead one who is not accustomed to them to entertain serious dread of some accident. Experience shows that most cases of tachycardia are not dangerous. However disagreeable they may be and however alarming, if we can make up our minds that the patient is suffering from palpitation of the heart and not from acceleration of the heart from other causes, there need be no particular anxiety as to the outcome.

On the other hand, it is impossible to predict how long an attack will last, and it is also seldom possible to influence the length of an attack by treatment.

Patients who are subject to attacks of tachycardia have more idiosyncrasies than can possibly be imagined. If they have suffered many attacks they have been treated by many different kinds of remedies and measures. They ought themselves to know of some procedure that has succeeded in their case in cutting short the attacks. I have one patient who can relieve herself of an attack by turning over in bed and lying on her left side. I have had others who could stop an attack by getting up out of bed and walking around.

Once in a while we find a patient whose attack may be stopped by a dose of nitroglycerine. A great many are in favor of remedies that

bring to bear a distinct effect on the stomach, thus, palpitation is benefited by strong carminatives. Sometimes a cold ice-bag over the heart or a belladonna plaster will help; or a small dose of morphine, which calms the nerves and makes the patient more comfortable. We must remember that there is no specific remedy for palpitation. One thing after another has to be tried, but when the time comes the attack will come to an end. An attack of palpitation will terminate very often by crisis, just as it began. The patient will have a sudden sensation in the chest as if something had happened, and the pulse will drop, ordinarily, from 130-140 to 80 or 90, and then gradually come down to normal.

In cardiopathic patients the pulse is generally irregular for a few hours or days after the attack of palpitation, then they go on as if nothing had happened.

There is another form of tachycardia which is a little different from ordinary palpitation but is not always as easy to differentiate, and this form of palpitation has received a special name, fibrillation of the auricle. In an ordinary attack of palpitation, the cardiac impulse commences in the auricle and extends to the ventricle in the normal way.

I have at hand a book that was sent me by Dr. Brunton on "Therapeutics of the Circulation." Brunton is universally known as the man who first introduced the use of nitrites into medicine, or to be more exact, the first one who used them in angina pectoris. If Dr. Brunton had never accomplished anything else, his discovery that there are certain cases of angina pectoris that are helped by the nitrites would be sufficient to perpetuate his name in medical science. He suggests one measure in connection with palpitation that I have not mentioned—that an attack may be cut short by an emetic. I have a great many patients who have confidence in the use of bicarbonate of soda in attacks of palpitation, and Brunton gives several formula: peppermint water, bicarbonate of soda, spirits of ammonia, etc. All these may be found in any text-book.

The rather halting way in which I have tried to give a theoretical explanation of palpitation will, it is hoped, convey the impression that it is fairly simple in its manifestations, and is also a thing about which we do not know a great deal.

Personally I do not believe that any gastric reflex is sufficient to cause an attack of palpitation in a healthy heart. I believe that the relation between the heart and the stomach is not a reflex one as much as a chemical one, and that the heart is first made susceptible to attacks of palpitation by damage, often enough by the absorption from the intestines of various toxins. Then I believe that palpita-

tion is often precipitated by chemical causes, that is, some toxin has been absorbed into the blood which acts on the heart.

However, there is, of course, a reflex relationship between the stomach and the heart, but the relief of the stomach condition does not relieve the attack of palpitation. Most patients develop this tendency early in life, and have attacks of palpitation off and on for years. A patient I saw last winter had been subject to attacks of palpitation for forty-five years, and in that case it was perfectly evident by a laboratory investigation that the cause was in the intestinal tract, and damage to the organs of circulation was manifest. The patient had a very profound indicanuria, and when measures were directed against this, he was free from attacks of palpitation.

So much for simple palpitation occurring in general and in cardiac disease.

There is another form of tachycardia that is distinct from these, and that is the tachycardia of Grave's disease. Grave's disease is characterized by a certain group of symptoms, caused by disease of the thyroid gland. A typical case of Grave's disease has a rapid heart, enlargement of the thyroid gland, protuberance of the eyes, tremor, and a certain degree of gastrointestinal disturbance. The cases vary a great deal in their types. I have seen a great many of them because I formerly worked in nervous diseases, under which heading they are generally classed. The heart in Grave's disease, when undamaged, is regular, and cardiac rhythm normal.

Two very good examples of tachycardia that I have recently seen in the hospital are as follows:

Mrs. A. C., 33 years of age, had been suffering for a long time from cardiac disease. She had a double aortic murmur, a mitral systolic murmur, and the signs of a mitral stenosis.

One day she was suddenly seized with nausea and vomiting—an attack of palpitation of the heart. Her heart beat was so forcible and rapid that she could not sleep, and she complained of a good deal of pain in her chest. She also had some difficulty in breathing and developed some diarrhea.

Two days later I saw the patient, and at that time she was still suffering from the continuation of the attack of palpitation. I recognized it as such, and instead of giving a bad prognosis, as might naturally have been done in the presence of her serious cardiac condition, I gave a good prognosis, and predicted that the heart would slow down when the time came for it to do so.

We applied the usual remedies, particularly an ice-bag over the heart, and in the evening, between eight and twelve o'clock, the pulse fell to about 90. I should say that in the morning when I tried to

count her pulse it was very hard to do so; it was about 193 to the minute, approximately—the heart action was very rapid, somewhere over 180. It was fairly regular in rhythm but her pulse was uncountable, which was to be expected in a patient who had so serious a valvular lesion. The nurse had recorded the pulse as she felt it at the wrist; of course, she only counted the prominent beats, and her count was 122, which did not correspond with the heart beat. At the termination of the attack, the heart was beating 90 to the minute, and each beat was distinct and strong.

This illustrates what I have often noticed, and that is, in an attack of palpitation, the heart, when it is diminished in frequency, very often beats just about half as fast as it did during the attack of palpitation. I have had my hand on a patient's pulse when the attack came to an end. This woman's attack ended when she was asleep.

When I first saw the patient, my impression was that she was suffering from an attack of broken compensation, but she did not have the cardinal signs of failure of the heart—she had no chronic edema, no chronic dyspnea, while her liver was not more tender than usual with her. In other words, though she had the signs of something having gone wrong with her heart in its tremendous rapidity and its palpitation, her circulation, nevertheless, was being carried on in a fairly satisfactory manner. I knew, therefore, that she had not suffered an attack of broken compensation, and ruled that out; with the tremendously rapid heart action, it was easy enough to decide that she was suffering from an attack of palpitation. A patient with palpitation of the heart has every appearance of being dangerously ill, but experience teaches us that when the time comes, the heart will slow down.

I was tempted when I first saw this patient to give her a very efficient dose of one of the heart-slowng and toning-up drugs, because she looked to me, as I say, as if she had suffered an attack of broken compensation, and was in a desperate condition. Only after a careful analysis of the case was I sure that it was an attack of palpitation. Now if we had given her a dose of digitalis and found her pulse one-half as fast, we might have supposed that we had accomplished a wonderful feat of therapeutics, but as we did not, we knew it was the normal termination of an attack of palpitation.

What is worth remembering is that whatever symptoms a patient may have—cardiac pain, cardiac dilatation, cardiac palpitation, cardiac irregularity, or what-not, when estimating the functional integrity of the heart, always consider the circulation because if the heart is intrinsically weak, that is, if it has lost its tone and is dilated, it does not carry on the circulation properly, and there are signs of

poor circulation in the lungs, moist râles, shortness of breath, blueness of the extremities and edema. First of all, however, chronic stagnation of the liver is manifest. If these signs are absent, it is certain that whatever is heard in the heart itself, the functional integrity is unimpaired, and the patient is in no great danger of heart failure.

It is certainly hard to imagine how a heart beating as fast as in this patient—180—could carry on the circulation, but as a matter of fact, it not only did carry on the circulation but she had no symptoms of a failing circulation.

The other example of tachycardia was a case of Grave's disease. This patient, C. B., 47 years of age, did not give a very clear history of herself, but we found that for a great many years she had been very nervous. We noticed that her heart was rapid, that she was very emaciated, and had been subject to gastrointestinal disturbances. While in the hospital, her pulse had been rapid; it had been as high as 120, but occasionally it was recorded as being in the nineties. Probably the average of several hundred examinations would be about 110, or perhaps 105 would be nearly correct.

On examination the patient was emaciated, and showed evidences of being of a nervous temperament; the enlargement of the thyroid, that is, the lateral lobe, was noticeable. Some weeks before, on her admittance to the hospital, when her condition was not so good, her eyes were more prominent. The patient had a coarse tremor. During the summer, before coming to the hospital, she had had a great deal of trouble with her bowels (these patients suffer very frequently from attacks of diarrhea).

Grave's disease is a cause of rapid heart action which should always be borne in mind because the cardinal signs are the rapid pulse, the enlargement of the thyroid, the prominence of the eyes, the tremor, and the gastrointestinal disturbances, but not every case has these symptoms. Grave's disease can exist without enlargement of the thyroid; without prominence of the eyes; without chronic nervous symptoms; or it may manifest itself only in the gastrointestinal disturbances and the rapid heart action.

Grave's disease is supposed to be due to excessive secretion of the thyroid gland. I suppose the best treatment is the surgical treatment whereby a great part of the gland is removed. This operation, however, is very dangerous, and has a very high mortality, except in the hands of a few men who have learned to do the operation particularly well, who have learned to remove the glands without injuring the tissues from which they remove the gland. In my own experience the patients die suddenly after the operation.



There is no other specific form of treatment, but the acute cases have a natural tendency to get well in the course of time under good hygienic surroundings. For that reason physicians obtain a certain degree of confidence and also a certain degree of discouragement from the same remedy because some cases recover and some do not. I used in a great many cases tincture of belladonna continuously up to the point of physiologic symptoms; flushing of the skin and dilatation of the pupil. At least, we had several patients with acute Grave's disease who had a good recovery. I do not have occasion to treat many of these cases any more, so have not followed the literature. Digitalis will not slow the pulse in Grave's disease, nor is there any other drug that will. The results of all the different treatments that have been proposed have been, to my mind, very encouraging in some cases and very discouraging in others. At the present moment I am more in favor of the operative treatment if a man can do it well.

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## CASE REPORT ON THE USE OF RHEUMATISM PHYLACOGEN\*

By J. T. DUNN, M.D.

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It is very evident to my mind that rheumatism has finally bowed its head to the inevitable and is to be added to the rapidly growing list of easily curable diseases.

Since the introduction of antitoxins and the various sera, it is no surprise to us to have rheumatism bow its stubborn head and walk under the yoke and do man's bidding. To listen to histories and read reports of how this dreadfully painful, crippling disease has yielded to only a few doses of the latest production of man, known as rheumatism phylacogen, is little short of miraculous, dramatic to say the least.

The history of phylacogen is not necessary in this paper: suffice it to say that cases numbering more than 100 have been treated, carefully tabulated and watched and that in 96 per cent. a very rapid disappearance of all rheumatic symptoms have followed.

It is necessary to make a proper diagnosis of your case, eliminating all forms of septic arthritis, especially that of gonorrheal origin.

\*Case reported before the Jefferson County Medical Society, May 27, 1912.

Rheumatism phylacogen may be used as a diagnostic agent, in that if the case is not one of true rheumatism failure will result.

That the case is one of true rheumatism, there should be no doubt; then a decision as to how the dose is to be administered, subcutaneously or intravenously, is to be decided. There are advantages and disadvantages in both. There are certain contraindications to the use of the intravenous method. Cases with severe cardiac involvement, with arteriosclerosis and those far advanced, who are near a fatal termination, should positively not receive intravenous medication.

There are no contraindications to the subcutaneous administration. There are, however, some objections or disadvantages in the subcutaneous administration over the intravenous and vice versa; for instance, the subcutaneous administration of either 5 or 10 cc. wherever placed will produce a swelling and soreness which is at once uncomfortable and objectionable, and should the whole treatment be carried out by this method of administration it would hardly be possible for the patient to rest comfortably upon the bed. The indurations in my experience have been lasting and painful.

The intravenous administration has the advantage, in that it does not produce the slightest local disturbance or discomfort when properly executed and is really no more dreaded by the patient than an ordinary hypodermic. The disadvantages of the intravenous over the subcutaneous method lies in the fact that the systemic effects of the administration are explosive in character and at times violent, as was the case in this one I shall present to-night, and I am inclined to the belief that the more violent the reaction, the more good follows the treatment.

The advantage of the subcutaneous over the intravenous method of administration lies chiefly in the ease and certainty with which the dose may be deposited beneath the skin; whereas the intravenous administration requires some skill besides being purely a surgical procedure. Many operators failing in their first attempts to enter the vein subcutaneously resort to the open incision and subsequently puncture the vein.

A little practice should enable one to start the flow from the syringe within ten seconds after the arm is prepared for the puncture. The method is very simple but delicate and requires the use of a fine hypodermic needle, about a 26 gauge; it must be very sharp and about  $\frac{3}{4}$  inch long. An assistant makes constriction pressure above the elbow, thus bringing into prominence the median basilic and cephalic veins; the more prominent vein is selected and the point of the detached needle is made to enter the skin immediately

over the vein and down to the vein wall, and just here you will be defeated if your needle is the least bit dull, for as you endeavor to pass through the vein wall the entire vein will glide to one side and you will make your jab into cellular tissue beneath the vein; but if your needle is sharp, it will pass through the proximal wall of the vein with ease and there will be no leakage around the needle into the subcutaneous tissue, but blood will pass from the needle if you have entered the vein and do not pass entirely through the vein, the point emerging upon the opposite side. Just here great care must be had or one of three things will happen while the syringe is being screwed into the needle.

(a) The needle may be dislodged from the vein.

(b) So much time may be consumed in making the connection and starting the injection that the blood will clot in the needle.

(c) The syringe, unless properly prepared before inserting the needle, may have air in such position as to be injected into the vein, but with proper precaution there will be no difficulty encountered from any one of these possible sources of delay and danger.

It does not occur to me as being advisable or at all necessary ever to give an intravenous injection of anything at any time through an open incision and into a dissected vein with ligatures above and below as was formerly advised. I am in the habit of giving normal salines as well as salvarsan, etc., by the method described above.

Just here I wish to discourage the method of introducing the needle or attempting to introduce it into the vein while attached to the syringe, as being uncertain as to positive entrance, necessitating a slight suction stroke of piston which will plug the needle by drawing in fat particles if not in the vein, which if not detached may be pushed into the vein and forced into the circulation, or if not forced into the circulation, dislodged into the tissues around the vein, together with some of the phylacogen when great pain and swelling will result.

Another reason why the intravenous administration by the puncture method should be done, and not by the open incision method, in the treatment of rheumatism, is that the dose must be given daily for 6 to 10 days, and if thus given into the vein through an open incision would be prohibitive.

The time allowed for the administration of 10 cc. should be at least 10 minutes. Rapid intravenous injection of rheumatism phylacogen produces serious circulatory disturbances, blueness of lips, pinched expression, ashy complexion, disturbed heart action and rapid, shallow respiration.

Within 20 minutes after the injection chilly sensations develop

which rapidly deepen into a marked chill of the chattering variety, which calls for hot water bottles, extra covers and a complaint of pains in all the rheumatic joints, which by this time are in a state of vibration absolutely beyond the control of the patient. If the dose is the first one, chances are that the reaction will be very severe and the limbs be dancing the highland fling, while the victim lies by and takes notice that many joints are cracking and popping at such a rate as to warrant the belief that the final end has come; especially is he convinced when nausea ensues and a hurry call is issued for a pus basin. For 30 minutes the entire attention of the patient, nurse and physician will be consumed in dealing with vomiting and chill, which gradually passes off, when a profuse perspiration ensues, the patient falling asleep. The reaction is startling when one first sees it. We are warned by the manufacturers to give the intravenous medication only after the subcutaneous method fails to cure, or only after testing out the patient on two or three subcutaneous doses, and then to follow with the intravenous in small doses.

Mrs. V. G. Age 27 years. Ill of rheumatism 10 years, commencing in right knee, followed soon in the left. They were very much swollen, red and painful. One year ago both shoulders, elbows and wrists, with three fingers and thumb on left hand and thumb only on right hand became affected. The left wrist became so stiff that motion was almost entirely lost and the motion in all the other affected joints limited to about 50 per cent. of their normal range.

The customary rheumatic treatment was resorted to, in addition to 5 weeks at Hot Springs, Ark.; 3 months at Martinsville in 1911, and another 3 months in 1912, and in the interval frequent trips were made to various parts of the country where hopes of relief would be obtained, including Saratoga Springs, Mt. Clemens, Clark's Baths, Detroit, Mich., and French Lick, etc., etc., all to no avail. The progress of the disease was not checked, nor were the pains relieved. The only relief obtainable was by free use of aspirin, of which at the least calculation the patient has taken 6500 grains since last June (now 11 months) and by actual count 6000 grains in the past 8 months, or about 25 grains per day.

For one year she has been obliged to use a cane in walking, and since the arms became involved one year ago has been helpless in so far as dressing, feeding herself, combing her hair, etc., it being impossible to get the hands to the head or mouth.

Admitted to hospital April 24, 1912; walking difficult by aid of cane, both knees firmly bandaged with flannel and very painful; the use of pillows under and between the knees were necessary. Patient unable to move herself in the slightest, the service of a special nurse

being needed to make all the necessary movements for the patient, who declared that rheumatism was "a most difficult guest to entertain." A chart showing the range of motion in both upper and lower limbs was made upon admission.

Temperature  $98\frac{2}{5}^{\circ}$  F. Pulse 84. Resp. 20.

April 24th: 10:00 A. M. 5 cc. rheumatism phylacogen was administered subcutaneously beneath the left scapula. The only reactionary symptoms were elevation of temperature and pulse which began in 3 hours and increased until temp.  $102^{\circ}$  F. and pulse 112 was recorded in 8 hours, when both gradually fell to normal. Patient complained of soreness at site of injection, but had a fairly good night.

April 25th: 8:45 A. M. 5 cc. s.q. in right hypogastric region (the back being too sore to admit of further medication). The reaction reached its height within 11 hours, temp. being  $101\frac{3}{5}^{\circ}$  F. and pulse 106. Had a good night's sleep, but complained of pain at site of injection (no relief from pain).

April 26th: 9:45 A. M. 10 cc. given in left hypogastric region and at 10:45 had cold, clammy perspiration with chilly sensation; heat applied. The reaction reached its height in 9 hours, temperature being  $104\frac{1}{5}^{\circ}$  F., pulse 120. Fairly good night, no relief from pain.

April 27th: 9:15 A. M. 10 cc. given in right hypochondrium region; the reaction reached its height within 10 hours, temperature being  $101\frac{4}{5}^{\circ}$  F., pulse 122; had a fairly good night. No relief from pain.

April 28th: 9:15 A. M. 5 cc. intravenously. Reaction began to show in 20 minutes by marked chill, which was a severe chatter, causing not only the patient to tremble from head to foot, but the bed to be thrown into a state of vibration such as we had never seen. The chill continued for 35 minutes and was accompanied by blueness of lips, ashy hue of face and frequent outbreaks of cries by patient of pains in the affected joints, interspersed with vomiting lasting 20 minutes projective in character. Hot water bottles and additional covers were resorted to, and as the chill passed off, hot lemonade administered, but promptly ejected; thirsty and uncomfortable; lapsed into drowsy condition, but did not sleep. Reaction reached its height in  $3\frac{1}{2}$  hours, temperature being  $106^{\circ}$  F., pulse 136, respiration 39, which within 11 hours dropped to temperature  $101\frac{4}{5}^{\circ}$  F., pulse 126, respiration 30. Body profusely bathed in perspiration, slept fairly well and awakened free from pain. To our great surprise and delight was able to change her position from side to side at will without the slightest pain and marked improvement in range of joint action was noted, being about 25 per cent. improvement. General condition much improved; patient now able to easily reach



the mouth, hair and any portion of the body without pain, and as a demonstration kicked both feet at one time into the air, making flexion and extension without pain; has continued to improve from that day (April 29th) notwithstanding the continued rainy weather. The day following the first intravenous injection none was given. Upon this day she was very comfortable and sat up in a chair two hours in the afternoon without pain or discomfort other than stiffness of the joints.

April 30th: 9:00 A. M. 8 cc. intravenously, followed in 20 minutes by the typical reaction as before described, chill, vomiting, sweating, except not so severe, temperature reaching only  $102^{\circ}$  F., pulse 120; slept well.

May 1st: 8:45 A. M. 10 cc. intravenously, followed in 20 minutes by typical reaction, temperature  $102\frac{3}{5}^{\circ}$  F., pulse 114. Slept well and feeling better.

Attention is called to herpes upon right cheek, size of half a dollar, and two points upon back, low down, same size, attributable to phylacogen, and approaching menstrual period, which appeared the following day. No phylacogen given during that period; zinc oxide ointment applied locally; herpes disappeared when menstrual period was over. During this rest from treatment patient's appetite improved very much and she spent most of her days in a wheel chair, with short walks about the hospital, supported by the nurse, going out into the yard when weather conditions were suitable; sleeping better and free from pain.

May 6th: 9:00 A. M. 8 cc. intravenously, followed promptly by the regular type of reaction, temperature reaching only  $103\frac{4}{5}^{\circ}$  F., pulse 130 within 3 hours, 45 minutes, but soon receded. Patient feeling better at 2 P. M., sitting up in bed at 6 P. M., enjoyed supper at 9 P. M., and up walking about the room and hall at 9:30 P. M.; retired at 11 P. M. Still complaining of soreness and presenting some discoloration over site of previous subcutaneous injections.

May 7th: 9:15 A. M. 10 cc. intravenously, followed by typical reaction, temperature reaching its highest within 3 hours, being  $103\frac{2}{5}^{\circ}$  F., pulse 124; patient up in chair at 3 P. M.

Dismissed from hospital May 8th.

May 9th: 9 A. M. 10 cc. intravenously.

May 10th: 9 A. M. 10 cc. intravenously.

Making a total of 9 packages of 10 cc., each covering a period of 17 days.

The patient is highly pleased with the outcome of the treatment and is now, even in this short time, able to sleep better, eat better, walks without pain and unaided, goes every place about the home,

dresses herself, combs her hair, and feeds herself and all without the use of aspirin, which she discontinued May 8th. Has felt no inclination to resume its use and has discarded the flannel bandages, while her faithful friend, the cane, has an honored place upon the hall tree.

It is useless to say that so far we are very much pleased with rheumatism phylacogen. It is certainly a boon to this class of sufferers, and although the reaction from its intravenous administration is severe, it is to be preferred in suitable cases to the subcutaneous method.

Note the difference in the physical condition in this case report, where subcutaneous injections, even in 10 cc. doses, did not lessen the painful condition of joints, whereas the very first intravenous, consisting of only 5 cc., gave immediate relief. It is true that intravenous medication is a surgical procedure and should be given only by physicians accustomed to surgical cleanliness and surgical technic. I believe it is perfectly safe in the hands of such men, others should use the subcutaneous method and give the treatment for a longer period and be satisfied with less prompt results.

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### “SOME IDEALS AND ATTAINMENTS POSSIBLE IN MEDICINE”\*

BY GEORGE F. BUTLER, M.D., Ph.D.,

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For four years you have studied under the guidance of your teachers. Now you have reached that point from which, in the opinion of the faculty, you can pursue your medical studies independently.

While you are well grounded in the science of medicine, as I believe, you have yet something to learn, if you have not yet learned it, before you can be successful physicians in the big sense, and I believe I would fail of my duty if I did not impress upon you the necessity of idealism and high manhood in your vocation.

If there be any men and women who beside health of body and mind require an ideal more than those of any other vocation or profession they are the medical men and women, for their actual life is hard work, perpetual strain and mostly commonplace. Almost im-

\*Address delivered before the graduating class of the College of Physicians and Surgeons, at Commencement, Boston, Mass., June 12, 1912.

possible exertions are required and they need a sun to warm them, a star to guide them, and an ideal to steer them.

With an ideal to guide you, you will be enabled to contribute to the problems of the future. For the physician, one of the problems is the prevention of disease.

It is by no means the least anxiety doctors must bear to protect people from themselves—from following illusory promises of health. The air is full of these *ignes fatui*, every one of them beckoning over a dangerous bog and all getting victims.

The natural enemies of man are numerous, but the worst of them all is the uneasy mind of man himself, especially of man in a half developed state of mind, slowly awakening to a mistrust of established things, and eager to lay hold on plausible innovations.

It has always been so. In the darker days of a hundred years ago, before medical art, as we now know it, had really begun its extraordinary history of discovery and development, the wise woman and the dispenser of herbs and "simples," the dealer in charms and spells, divided with the doctor, in unequal ponderance, the administration of cure, counteraction and prevention. Nobody now thinks of these things, not because there has been abatement of credulity, but because these things themselves have passed away. But they have been succeeded by others in no degree less foolish or harmful, only conforming more easily with changed methods of thought and of custom.

And thus we swing through the slow cycle of the ages. The exploded fallacy of one stage becomes the accepted rule of another. In all but the surface of things we remain unchanged, and in no other more sadly than in the duty of the older brothers of the race to care, as best they can, for the vast majority who think ignorantly, and with bland confidence press forever toward the things, the beliefs and practices that work for evil.

The physician is commonly assumed to thrive by the ill health of others. In a sense that would seem to be true, but upon full consideration it is found to be the reverse. The bounden duty of every doctor is to prevent disease by all means in his power and to stamp it out wherever it appears.

As a matter of fact, the physician is the only professional man in the world who devotes the very best energies he has to combating the very conditions whose existence is supposed to furnish him a livelihood. The learning, research and untiring labor of every medical association in Europe and America is directed to the discovery and eradication of disease causes, and only in a minor degree to the treatment of disease. The health of human beings wherever the

white man lives or wherever he has penetrated has in the last thirty years been so successfully conserved that the insurance actuaries are beginning to report an increased longevity. The discovery of the origin and transmission of disease by germs has been followed by the most widespread and sweeping reforms in wholesale public sanitation and by counteractive treatment in private practice.

Without these things, and with the increase of half a billion in the world's population during the last half century or so, there would have been a succession of murderous scourges and plagues such as imagination reels to think of. Without them the crowding armies that are marching toward us out of the next quarter century would be entering upon a world of unspeakable calamity and desolation.

Here in the United States our census shows that our population for thirty of the past forty years has grown at the rate of fifteen per cent. each ten. In the last ten of the forty, as shown by the last census, there was an increase of almost twenty per cent. These percentages compound from decade to decade. Stop a moment and think of what that means:

We have now about 90,000,000 people. The latest rate of increase being maintained, and there is no apparent reason to the contrary, we shall, in twenty years, have, say, 130,000,000; in thirty over 155,000,000; in forty over 185,000,000, and in fifty over 260,000,000 people within our continental limits. Up to a very little while ago we counted the number of acres to the man among us. The time is rapidly coming when we shall be counting the number of men to the acre. Cannot you see that the existence of these thickening millions, bone of one bone, and flesh of one flesh, whom we ourselves, by the inexorable action of a basal law in nature, are calling into the world, must hinge upon the state of public health, the mastery that must be established over the forms and practices and policies of public and private life, that will most effectively uphold vigorous individual health? There is only one way to work that out. Tireless search for the causes of diseases, for the seat of unhealthful influences, and utterly tireless effort to compel government in all its forms to adopt and enforce such laws as will render these discoveries effectual unto human life for the benefit of the people at large.

This is the work the doctor must do. It has a significance so immeasurably higher than any private or personal interest, that it has shaped and is holding the whole bent of mind among the doctors, not as a professional body merely, but as men and daily workers, each in his field. It is so implanted as a part of the education of every reputable physician that his first impulse on the suspicion of every disease cause is to drop all else and hunt it down to complete eradi-

cation. Not one of them but holds his discoveries, his time and his skill at the unrestricted service of all his brethren, for the advancement of the one cause to which they are all committed; and not one of them—I say this emphatically—is in this dominant labor of his life actuated by personal motive, or the hope of personal gain.

This is so much a truth that I feel it almost unethical to say as much. I do not say it by the way of boast, nor as a plea for my professional brethren, for we need no plea, and ask no recognition for a plain duty, plainly performed for duty's sake. We are in the forefront of an advancing civilization such as never before was dreamed of. It comes under influences so benign that the old blood-lettings and decoctions and pestilence which kept down population are no more and the earth will soon be filled. A higher power is keeping us pushed to our task of making life safe and keeping a health-efficiency in advance corresponding with our growth in numbers. It is a manifestation of that same power whose finger moves mankind from epoch into epoch, and "hangeth the worlds upon nothing."

Before our generation lie a list of great undertakings of the value and profit of which for ourselves we cannot be sure at all. The labor is likely to be too long and too great. Our cities must largely be rebuilt and built better; overcrowding must cease; the children must all be brought somehow into wholesome touch with the soil. The land—naturally the greatest social instrument—must be freed of the selfishness and arbitrariness of individual control and somehow made to do its proper social service. The enormous advantages of the world's gain in power and wealth, through science and invention, must be more righteously distributed. The load of the military and naval armaments of rival nations, the survival of barbarous ages, must be lifted from the shoulders of the toiling peoples. It is as if the streets of a town were dug up for extensive improvements. While the great work goes on the people who live on the street suffer inconvenience and expense. They must endure, in order that not merely themselves, but others later, may enjoy them more. Much of the labor of our generation may even seem to go out of sight, like foundations under the ground. It is given to man not only to obey the law which the brute creation obeys without knowing it; it is also given to man to know the law and to will to obey it; that is, to choose it and be glad in it.

If tuberculosis is known better to-day, it is the outcome of the work of many, and for centuries. If it is to be exterminated, it takes the sympathy and labor of more than one person, one society, one town, one country. It demands the coöperation of all and every one.

Your ear should be taught to listen to and know the dignity of



moans and coughs and stifled cries. Your eye should behold intelligently and pityingly the shriveled skin of emaciation, the hungry look and the suppressed tear, your hand should know how to feel the pulse of him in the stricken, lowly dwelling and that of society besides. You should learn how the other four-fifths live and how they sicken and die.

The whole town with its intercommunication of roads and railroads, street subways and elevated roads, cabs, stages, and sewers, is a network from which there is no escape. As sanitarian, public and private teachers, doctors and nurses, workmen and tradesmen, coachmen and butlers, cooks and maids, your grocery clerk who takes orders, your tailor who gives out your evening dress coat to be sewed and finished in the tenements full of infectious diseases, including consumption, your milliner and ladies' tailor and fashion dictatoress, from whose score of working women you are only separated by a swinging door, the mail-carrier and expressman, conductor and your neighbor in a car, the people from unknown parts, who, with their children, visit your help in your basement or are visited by them. All of them, while aiding and serving you, may prove your enemies, as some of you to your friends. All that was so before we ever knew what a germ was, and ever since, and will remain so unless we all stand together to learn and to prevent. Otherwise someone may bring to you and yours whooping-cough, measles, scarlet fever, typhoid fever and diphtheria, and more. Unless you help in fighting the antivaccination backwards movement inside and outside legislatures they will bring you, as they have done before, smallpox. You must take a firm stand against the social evil and combat with all your power the spread of venereal diseases.

These are some of the important problems for men to-day, and especially for the physician. It is his duty to teach the people *how to live*.

I see the labor demanded of and performed by us; the broad beneficence that flows through it to all the races of men that dwell upon the face of the earth; and the indifference with which it is received, except in cases where it is travestied and bayed at. At such times I wonder at these things and ask myself, "Why are doctors?"

There is just one answer to that. We are, because we are necessary to our fellow men, to the generations now here and the swarming generations to follow. It is our unavoidable destiny to carry on the work of bodily and mental salvation, and, as we pass away, to hand to those succeeding us the torch of knowledge in full, pure flame, unblighted and undimmed.

Medicine as it begins to touch upon higher interests, even the in-

terests of life and death, should feel itself in alliance with higher motives than any which can be thought to help and quicken its pursuit as a mere science. Medicine claims a sort of moral respect in the handling. The vocation of the practising physician is the spirit of Christianity in action.

In the accomplishments of the most learned physician there may be one thing lacking, the need of which may stand between him and the fullest equipment for success, and that one thing is the tactful and sympathetic knowledge of his fellow man. It is probable that a doctor may be acquainted with all that may be known of the diseases of man, and yet know too little of the man himself.

You must learn that disease is far more important and far deeper than an aching head, hurried breathing or a fluttering pulse; that disease is something much more serious than the mere interference with the mechanism of life; that the measure of its evil is not the increased rapidity of pulse, not the daily wasting of the body, nor its numerical frequency in the records of mortality, but the degree to which it so tells upon the mind, heart, will and power of man, that it prevents him from doing that work in this world which it has been given him to do.

Many physicians of extensive experience are destitute of that sympathy and acumen which enables them to search out and understand the moral cause of disease; they cannot read the book of the heart, and yet it is in this book that are inscribed day by day, and hour by hour, all the griefs, and all the miseries, and all the vanities, and all the fears, and all the joys, and all the hopes of man, and in which will be found the most active and incessant principle of that frightful series of organic changes which constitute pathology.

If, then, you would so learn of life as to alleviate its woes, you must not regard your patients as mere interesting clinical phenomena. You must not look on them as cleverly acting physiological machines upon which you may experiment for your own diversion.

You must come to learn the meaning of the infant's look, to understand the tone and teaching of its cry. You must appreciate the patience and long-suffering of woman and the hardihood and rough exterior of man. You must look and see beneath these if you would measure the true degree of their affliction. You must learn to feel with and understand the feebleness of age, and gain all that is required for administration to its wants; from these hints that come to you through the failing powers and closing avenues of a soul that has for a long while battled with a world too rough.

True sympathy will reveal much to you that science cannot teach. Wherever there is life there is your field of study. Wherever there

is suffering there is your field of work, and truly to relieve its burden, your spirit must be that of Him whose life was the perfect life, whose presence and word brought peace and health, and into whose work in this world it is your highest aim and highest dignity to enter.

In addition to cultivating a strongly sympathetic nature you should acquire a liberal education. One liberally educated is trained in the humanities, skilled in whatever pertains to human welfare. Liberal culture is public spirit and ability to pursue its promptings, a heart at leisure from itself to soothe and sympathize. Any other education is narrow, shackled, not liberal because not free, however much one may know and however large the wages the knowledge may earn.

Very exacting will be the demands made by your vocation upon the intellectual side of your nature. Never was there a time in the history of the healing art when greater alertness and versatility of mind were required by its practitioner to cope with the ever increasing rapidity of development.

A wide knowledge of our common humanity in all its aspects and workings is of much assistance in managing different classes of patients. Such knowledge cannot be obtained by reading medical books alone. We must study mankind by mixing with men, interesting ourselves with men's work, and by reading the best books on various subjects.

Not only in the treatment of nervous and mental diseases but in the treatment of many other diseases there is the question of the patient's mental background, the unconscious standpoint that our patient occupies, and with which, so far as possible, our remarks and attitude should harmonize until we are able by degrees to change it. And to do this the figures, the language and arguments we use, must fit in to some extent with the scenery of his thoughts; with the physical plane on which he moves. We should be so versatile and well read that we can intelligently discuss religion, politics, political economy, sociology, philosophy, music, poetry, art, history, literature in all its phases, in a word, our mental machinery should be large and capable of being readily shifted at will to suit the figures that move on the mental stage of our patients' minds.

You should read books of science, history, religion, philosophy, for these will give you the best in all the great departments of human thought. Our books should be measured by their power of presenting some typical chapter in thought, some dominant phase of history and also by their power of giving harmony to our moral and intellectual activity and of idealizing man and nature.

We should also read books of simple enjoyment, books that we can laugh over and weep over; which have in them truth, human nature in all its sides, and withal sound teaching in honesty, manliness, gentleness and patience. We need the great thoughts to stir us anew, and their generous passion to warm us hour by hour, just as we need each day to have our eyes filled by the light of heaven and our blood warmed and enriched by the glow of the sun.

The immortal and universal poets of our race are to be read and reread 'till their music and their spirit are a part of our nature; they are to be thought over and digested till we live in the world they created for us; they are to be read devoutly, as devout men read their Bibles and fortify their hearts with psalms. For as the old Hebrew singer heard the heavens declare the glory of their Maker and the firmament showing His handiwork, so in the long roll of poetry we see transfigured the strength and beauty of humanity, the joys and sorrows, the dignity and struggles, the long life history of our common kind.

It is necessary nowadays that the physician be broadly and liberally educated, for the medical man is the very one to whom, to use the words of the philosopher, "nothing that is human is foreign to him." I cannot imagine anything connected with human life which does not legitimately belong to the domain of the physician. From the cradle to the grave his advice is required and sought for. Already his knowledge is being sought for and consulted, not only by those who are acknowledged to be physically, morally and mentally diseased, not only in the regulation and enforcement of private and public hygiene, but in economic, sociologic and other great public questions involved in the greatest difficulties.

I wish I could impress every one of you with the ambition to belong to the family of *idealistic* physicians, scorning low motives, despising mean measures; to so live that the world may say of you: "This is a man"—a noble, virile type, the living exemplar of that high conscience, that stainless sense of honor and incorruptible love of truth which alone proclaims the Creator's image.

In every walk of life we need men of staunch courage, God fearing, or, better, God loving men, men with strong personalities, to stem the tide of shuffling weakness and give honesty, purity and tone to politics, trade and society.

The satirists of to-day castigate the whole race of man much as in the days of Juvenal. The prophets of Israel still speak their rebukes to us. The cry is for some higher types of men, some aristocrat or "superman" fit to create a nobler society. It is the liberal professions, with their intellectual and moral outlook, afforded by the

culture, both of mind and heart, that will first turn their eyes to the consummation of that ideal. We are either here for no intelligent purpose at all, or, like other peoples here, to form a connecting link between the imperfect and dying past with the living and more perfect and beautiful future.

We want a better type of man than the present yearly average. What the world is looking for are men who are just, faithful, generous, friendly, fearless, bound to do right, and devoted to the welfare of mankind. We have many such men now. But give us only more men and women of this type. Would that all physicians were men of this type, what a force they would be! Put more men of this type into the medical and legal professions, into factories, banks, offices, into Legislature and Congress, into the chairs of Mayors, Governors, Judges and Presidents, and all business will become a form of religion and all work will be ennobled. Fill the homes of the people with women of this type, and the education of the multitude will soon be more complete than the education of the favored few in great universities ever has been.

In closing, I will ask you, what kind of man or woman would you like to be? What kind of sons and daughters would you desire?

I have a picture in my mind of such a doctor as I would like to be, a doctor who aims with all his might to yield an increase out of his life. The doctor of my vision is not working for pay or honors, or fame or thanks and appreciation alone, or even for love; he is working and living to give help and love, and health and life, in every form by which a strong nature can express itself.

We should try to leave the world richer, wiser and better, or at least to try joyfully to do this. We need only the will to do well according to our light and our opportunity. We need not even feel that we must always do our best, but only the best of which at that day and hour we are capable.

Sometimes our spirits take wings and rise above all the difficulties and the burdens of our bodies and our wills. Again a leaden dullness rests upon our spirits and they droop and tire on the road. Then it is that we may, for our encouragement, repeat the words of the Scripture: "The Lord looketh on the heart," and if He finds our hearts and our ways set toward things good and pure, holy and honest, honorable and upright, although we may not always reach them in their fullness, then we may believe that we are safe, in this life and the life to come, and that we have done the best we could for humanity.



THE MODERN ASPECT OF THE ETIOLOGY AND  
TREATMENT OF SYPHILIS

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## SEROLOGY

The rationale of the Wasserman test cannot be explained according to the general principles of the phenomena of immunity. While this test is to-day accepted by a preponderance of scientific evidence as specific for syphilis, with the exception that it is positive in many cases of leprosy and frambesia, still we do not know changes caused in blood serum by the spirocheta nor just what causes deviation of complement. Strictly speaking modern serology is in its infancy and many things we now know are as yet purely empirical. The true value and potency of this test does not depend on the presence or absence of spirocheta nor on its activity or latency. In the condition of parasyphilis, where many years previously, perhaps, the primary and active syphilitic lesions existed, we now have the remains of the conflagration of syphilis resulting in a degenerated brain or spinal cord. In other words, the body was on fire a long time previously and now we have the interior of the building destroyed, and there stands now but the ruins as a reminder that a flame had raged long in the past. Therefore in these conditions while we have the flame extinguished, which was the spirocheta, nevertheless we do get a positive Wassermann reaction even when such a microorganism has sunk into obscurity or vanished. There are other parallel conditions in the pathology of syphilis which to date have been unexplained. Colles law taught that a woman could give birth to a syphilitic child without herself showing any of the signs and symptoms of the disease; we were formerly taught that she is immune to the disease of her infant. To-day it is well established that about 90 per cent. of such women supposedly immune are not so. The Wassermann reaction of such mothers' serum shows it to be positive even if she does not show any symptoms of the disease. This is a distinct scientific triumph of serology. But the Wassermann test does not find its applicability useful alone in testing the blood serum, it is just as valuable as a diagnostic means in diseases of the nervous system and can be applied equally as effectively to the cerebrospinal fluid.

Every modern neurologist in making a diagnosis must always regard examination of this fluid as of paramount importance, so that it should be used in his routine practice. Knowing the normal condition of this fluid he can readily ascertain what is abnormal. It is slightly alkaline, with a specific gravity of 1006 to 1008, containing a very small amount of protein material. There are traces of sodium and potassium chloride, carbonates and phosphates, and a reducing substance therein supposed to be one of the sugars.

According to Browning and McKenzie, "The antistances which are present as a rule in the blood as a result of bacterial infection cannot be demonstrated in any appreciable amount in the cerebrospinal fluid. This holds good even in those infections which primarily involve the central nervous system. In cerebrospinal fever the specific immune body which is present in the blood cannot be detected in the spinal fluid. Drugs which are administered by mouth or subcutaneously only in exceptional cases reach the spinal fluid. It has been found that potassium iodide does not pass from the blood stream into the cerebrospinal fluid. In bacterial infections, the antibodies concerned in the process of immunization cannot be detected in the cerebrospinal fluid, and on the strength of this fact the intraspinal method of serum treatment in cerebrospinal fever has been resorted to with great success."

Therefore in our treatment of various syphilitic diseases of the cerebrospinal system the site and nature of the lesion is largely responsible for the failure of treatment. In contradistinction to this fact is the discovery that the intravenous injection of salvarsan, as shown by Sicard and Bloch (*Compt. rend. Soc. de Biol.*, 1910, Vol. LXIX), that arsenic is found in the cerebrospinal fluid. This fact warranted me in treating my cases of *tabes dorsalis* with salvarsan to assure such patients, where the Wasserman reaction was positive, that there was still latent syphilis in the system and that I could hope to inhibit at least the further extension of the spinal disease even if I would be unable to cure it. In some cases of *tabes* treated by me with salvarsan, the symptoms were such as to practically render them invalids and unable to attend to their ordinary duties. Where the Wassermann was positive in not a single case did I fail to find that there was a response to treatment and improvement in some of the symptoms. I firmly believe that in those tabetics with a positive Wassermann reaction, the only hope for any improvement is with treatment directed to the disease as of primary spirochetal origin.

From the diagnostic point of view the cerebrospinal fluid may contain an abnormal amount of protein substance. The presence or absence of this condition is of importance especially in paralysis. Nonne and Apelt (*Archiv. f. Psych. u. Nervenheil*, 1907, Vol. XLIII) introduced the method of precipitation by means of semisaturation of the fluid with ammonium sulphate, showing the globulin content. Noguchi has also his delicate test for the presence of protein material by means of butyric acid. These precipitation tests and the Wassermann are distinct advances in the study of spinal fluid pathology. The cytological examination or determination of the cellular content of the spinal fluid is also of diagnostic value. Here the number of cells are counted as we make a blood count. Palut regards a cytological examination as negative when the number of cells in one cubic centimeter is less than six and as positive when more than ten. There are conditions of nervous diseases, however, where the blood may show a positive Wassermann reaction and the cerebrospinal fluid will be negative or both may be positive. We then have to deal with a disease that may be syphilitic in character or it may be a nonsyphilitic disease per se, but occurring in the latent stages of syphilis or concomitantly with some syphilitic lesion outside of the nervous system. In any condition where the syphilitic lesion of the nervous system involves structures immediately in contact with the spinal fluid, a strongly positive reaction may be found.

I desire to mention some exceptional cases of visceral syphilis. Syphilitic glycosuria is a phase of visceral syphilis that has greatly interested me and about which comparatively little is written or known. I have been making some observations along this line and at some future date will be able to give detailed information. There is no doubt that many cases of so called diabetes are not that disease, but merely a syndrome of vague origin, as a part of which glycosuria is found, and according to my claims most commonly caused by syphilis. I may here say that syphilitic pancreatitis is a condition more common than is usually supposed. Cases are known where first diabetes was diagnosed in a husband and a short time thereafter the wife also showed marked glycosuria, with symptoms of faulty metabolism. It would be absolute fallacy for one to suppose that the wife was infected with diabetes from her husband. She was probably infected with syphilis many years previously by her husband, and now assuming a latent course it manifests itself as a visceral complication by destructive processes interfering with the harmonious working of her organs and presenting the symptom of glycosuria.

## EDEMA OF THE GLOTTIS

In 1903 about midnight, I was called to see one of my syphilitic patients, a male, age 22, and was told he was choking to death. This young man had been under my care for a few weeks previously, and was placed on Hg. treatment. He was given on the day of the attack when I was summoned, a mixture of Hg. and KI., one grain of the latter to a teaspoonful of the mixture. Having taken just three grains of KI. during that day, the attack of dyspnea came on. This patient was in great distress, tongue protruding from the mouth, saliva dribbling (not a picture of ptialism), face cyanosed, patient propped up in bed struggling for air. He could not swallow water, there was an apparent edema of the glottis, due to an idiosyncrasy toward potassium iodide, many similar cases of which I have seen, where even one grain doses of the drug is not tolerated. A picture such as was here presented is long remembered. The term iodic grippe has been applied to such a combination of symptoms. This patient was relieved by hypodermic injection of large doses of atropine and no iodine in any form administered thereafter.

## SYPHILITIC ULCERATION OF THE COLON

Male, age 45, was seen by me in 1905. He was a man of ruddy complexion, no apparent anemia and in otherwise good physical condition, excepting his complaint of vague pains for the past six months along the course of his colon, starting in the right iliac fossa and at times progressing along the whole colon down the **left** side of the abdomen. His feces showed some pus and blood; no hemorrhoids or trouble in the lower rectum was established. At no time was there classical signs of appendicitis. On most painstaking examination, I established a number of links in the chain of physical evidence, which made it possible to positively diagnose latent syphilis, with ulceration of the colon. This was before the days of the Wassermann reaction. The patient had a chronic glossitis, which he said was due to excessive smoking, and several years previously he had a sore on his head, which he thought was a wart, and becoming irritated from combing his hair, he consulted a dermatologist. He denied most positively any history of chancre, but admitted having had urethral gonorrhea several times. He possibly may have had a urethral chancre which escaped detection. He was immediately placed on antisiphilitic treatment and there was satisfactory improvement at that time, responding to large doses of Hg. and KI. All his subjective symptoms showed marked improvement, in the change of his feces, digestion, etc.

This patient stopped treatment after about eight months of great improvement and gain in weight. In 1911 he presented himself with a large syphiloderm at the left angle of his mouth and the worst condition of glossitis I have ever observed. He was told he had active syphilis still and I advised his taking salvarsan, to which he consented. He was given a single dose intravenously, which made a marvelous change, healing his glossitis and syphiloderm of the mouth in a few days.

#### THE SALVARSAN TREATMENT OF SYPHILIS

For almost two years have I been using salvarsan and can give my observation in treatment of several hundred cases of syphilis with this new drug. So much has been written about its chemistry, therapeutic action, etc., that I will not here take the time and space to discuss those elementary questions and topics that have been heretofore written of. In the New York Medical Journal of December 2, 1911, in my article on "Facts and Fallacies in the Treatment of Syphilis with Salvarsan," will be found an extensive résumé of my work, and in this article I present my views on the remedy as a therapeutic agent, giving a study in hematology before and after treatment.

The successful treatment of syphilis with salvarsan does not depend entirely on the serological findings which follow. I do not allow my judgment in regard to the number of treatments or the amount of salvarsan to be administered to be entirely influenced by the Wassermann reaction. It cannot be denied that in spite of all kinds of treatment a positive reaction may persist, even when a patient is without any apparent clinical symptoms. The effect of salvarsan upon all syphilitic symptoms of an individual case may be quicker and more active than the appearance of a negative Wassermann reaction. Unfortunately every practitioner, however skillful he may be in the use of salvarsan, may not be able to control his work with exact Wassermann tests.

Every one has not the environment nor qualification to make a Wassermann test, as it requires much time and patience in making of the reagents, etc. The practice of using reagents as offered for sale by the pharmaceutical houses is not to be endorsed as they will not give the results that the original Wassermann technic and some of its modifications produce.

If the introduction of salvarsan into therapeutics has done nothing more than to open up new avenues for the study of the pathology of syphilis, then it has done much. But it has accomplished vastly



more. There are some in our profession who are still skeptical in regard to the true value and virtue of this agent. I regard such opinions as antiquated and without any foundation upon which to base a valid argument.

Only those who have used it extensively and properly and observed the truly marvelous results accomplished are in a position to pass judgment on its relative position in the therapeutics of syphilis in comparison with the older drugs and methods of treatment.

The intravenous method of administration is the method par excellence and is preferred by me to the intramuscular for the following reasons. It is more comfortable to the patient, does not produce a nodule, which may persist for months, nor does necrosis of tissue follow, which is a common sequela following the intramuscular injection. There is always a leucocytosis and a rise of temperature, reaching a maximum on the third day, following an intramuscular injection. None of this follows an intravenous injection. Intramuscular or subcutaneous injection of salvarsan in either suspension or solution is a relic of barbaric medicine, entirely empiric when so used, with no positive assurance of the absorption of the drug. I have seen several cases of intramuscular injection by confrères, with large sloughs resulting, requiring extensive dissection of the necrotic tissues and over two months time to heal.

Solutions must be freshly made at the time of use, and not several hours beforehand, so as to prevent chemical change by oxidation, etc., which gives a very toxic solution dangerous to the patient. All solutions must be made under strict aseptic precautions and all apparatus used must be sterilized.

I desire to take this opportunity of warning the profession against giving intravenous injections of salvarsan in the office. No patient should be given such a treatment and then be allowed to arise from the table and go home. While some physicians are doing this, I seriously condemn it and want to go on record now with such condemnation.

There are some blood changes which occur after an intravenous injection of salvarsan, when the solution mixes with the blood while in circulation. Remember that this solution injected into the vein of the arm goes eventually into the body circulation, and must flow through the heart and large vessels. Now if hemolysis occurs to any large degree, which does happen, (as I have proven by study of the blood, as quoted in my article aforementioned) some serious calamity may happen to the patient. There will be fatal

results then, not from the salvarsan per se, but from mechanical causes, and do not be surprised if you allow patients to walk away from your office within a short time after receiving such an intravenous injection, that some time one may drop dead.

One death such as this will, if only in a hundred thousand cases, do much damage in lay minds, influencing them against salvarsan treatment, while the physician will have been criminally and civilly responsible for his ignorance and malpractice.

Complications following the injection of salvarsan, such as involvement of the cranial nerves, have been reported. The optic, auditory and facial have been reported as involved, this being referred to as "Neurorecidiven" by the Germans and commonly called neurorecurrences or nerve involvement. If we will remember that the exit of some of the cranial nerves from the skull is through very narrow foramina, we will be in a position to logically understand such neurorecurrence. There may have been a condition previous to the injection, in which spirochete may have been lying dormant in such nerve tissue involving a cranial nerve. After salvarsan injection these may become active and some swelling of the nerve sheath may ensue which, pressing against the bony foramen, will give symptoms of nerve paralysis.

Hence if the optic nerve is involved, impairment of vision will follow; if the auditory, impairment of hearing; if the facial, impairment of the motor function of the facial muscles.

Most of the cases reported of neurorecurrences have cleared up without any permanent injury following. No such nerve involvement has occurred in cranial nerves, which have their exit through large foramina.

It is incumbent on me to emphasize the importance of investigating the circulatory system previous to the administration of salvarsan. The blood pressure should be estimated; if such pressure is high, 180 or over, then we should carefully observe our patient for some time before administering the drug. If plethoric, it will do no harm to bleed him, removing at least an equal volume of blood to the total volume of salvarsan solution, about 250 c.c.

It was formerly the exception instead of the rule to make a differential blood count in treating syphilis; this should be done before and after using salvarsan, for it will give much information should complications arise. Endocarditis and myocarditis, which are of long standing and apparently non-syphilitic, are existing, and if there is a break of cardiac compensation, manifested by edema, dyspnea, etc., should lead us to be cautious and to consider

well possible complications should we administer salvarsan. We would not attempt to give a solution into the circulation if there was danger of a possible rupture of some cerebral vessel by increased mechanical pressure in the circulation. Here venesection may be previously performed to lessen such pressure. Remember, however, that arteriosclerosis of the young and middle aged may be due to temporary inflammatory swelling of the tunica intima. It is therefore logical to assume that the whole arterial tree may be involved.

If there is any contraindication to the intravenous administration of salvarsan, I believe it should not be used in any other manner nor under any condition. If the heart and blood vessels will not allow of its intravenous use, as aforementioned, because of some organic disease, then it follows that with such impaired circulation, disturbances of the liver and kidneys may be looked for. These latter organs are essential for the elimination of salvarsan.

The urine of some of my patients has shown arsenic present in very slight traces as much as six weeks after a salvarsan injection. Browning and McKenzie state, "A case is reported of a patient who died five weeks after an intramuscular injection, and in the necrotic mass in the gluteal muscle a considerable quantity of arsenic was found." These authors also report a case of Martius (*Muench. med. Wochenschr.*, 1911, No. 20), of a male, age 35, strong and well developed, who was given an intravenous injection of salvarsan in the physician's office. He walked from the office to his hotel, where he died after increasing signs and symptoms of heart failure.

This is an illustration showing the danger of office administration as previously outlined by me.

Following the administration of salvarsan, the urine should be observed for a couple of days; some patients may show a trace of albumen that is transient and rapidly disappears, while others will complain of highly colored urine for several days, which is due to urobilin. There is absolutely no doubt in my mind that there is some destruction of red blood corpuscles in almost all cases where salvarsan is administered intravenously, but very seldom does this amount to such a degree as to cause marked hemolysis. A case of very marked hemolysis occurred in my practice, the only one, in December 2, 1911, as a case of hematogenous jaundice following salvarsan.

Salvarsan is a marked analgetic in many cases of syphilitic neuralgias, pains of tabes and pressure symptoms of gummata and especially in old cases of glossitis, where the patient cannot eat solid

foods. Some of my patients have stated that they experienced an aphrodisiac effect after taking the drug intravenously.

#### WHEN NOT TO ADMINISTER SALVARSAN

In addition to what has been previously said relative to being cautious when disease of the heart and blood vessels exist, I should be derelict were I not to mention the condition of chronic alcoholism. A chronic alcoholic with a small, cirrhotic liver should be looked on with suspicion. In 1911 I was consulted by a prominent citizen, who desired to take the salvarsan treatment, giving a history of lues many years ago, and while he was physically distressed, still I concluded he was suffering from chronic alcoholic poisoning more than from his former spirochetal infection. He had a bad heart, having an attack of dyspnea and syncope while I was examining him.

I refused to accept him for that treatment, frankly telling him that I could not cure him. In January, 1912, I was called by his family physician to see him, and found him in extremis, with edema of the lungs, starting several days previously, with a cerebral attack. I again refused to administer salvarsan, saying our patient would be dead in a few hours, which happened.

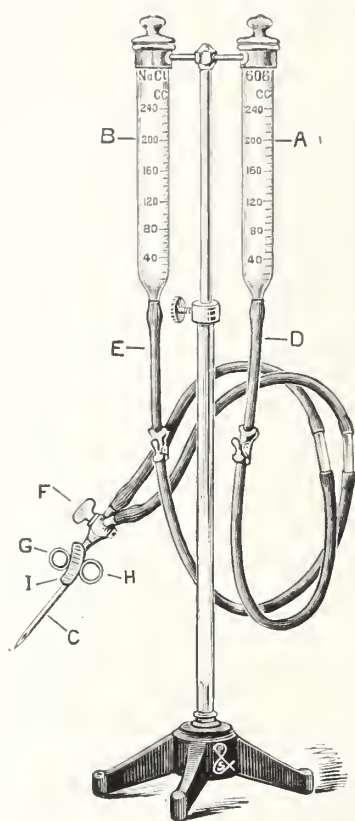
Cases from one of our insane asylums have been rejected by me as unfit for salvarsan; paretics and maniacs with destroyed brains cannot be benefited by it. When brain tissue is once destroyed you may as well expect to be able to convert marble into wood as to cause any change.

If one is called into consultation in a case apparently dying, with a diagnosis of gumma or of cerebral lues, where the heart and kidneys have also undergone the process of syphilitic degeneration for months, I would advise caution and better, refusal to administer salvarsan, since death is soon anticipated. Why give the remedy and have a fatality charged up against the drug?

We must guard against a tendency toward a so-called diagnostic syphilomania; must not believe that everybody has or has had syphilis and needs salvarsan, until absolute existence of the disease is proven.

#### AUTHOR'S GRAVITY INTRAVENOUS APPARATUS

In December, 1910, I requested Geo. P. Pilling & Son Co., of Philadelphia, to make according to my design, my apparatus for administering the drug intravenously, which has been described



in detail, in the Journal of American Medical Assn., March 11, 1911.

I believe the technic of administration such as described in this article is very satisfactory and without a better having been shown to date.

While salvarsan is not offered by its inventor, Ehrlich, as a substitute for mercury, it is, nevertheless, to be used in all cases of syphilis, because it accomplishes in a less period of time much more than mercury alone could. It should be used in addition to treatment with mercury, and no patient should be treated for syphilis without salvarsan being used in any and all stages of the disease, according to the views of the writer, as previously mentioned.

If I have conveyed any new impression of thought relative to the modern aspect of the etiology and treatment of syphilis, then I feel

amply rewarded for the effort used in writing this paper.

715 North Eighth Street.

#### TREPANNING IN THE STONE AGE

Evidence that surgical operations were done with a blunt instrument by prehistoric man was recently given by Prof. Guyon in the Academy of Sciences of Paris. A large tomb, dating from the polished stone age, has been discovered at Bengy, in the Department of the Seine-et-Marne. One hundred and thirty skeletons were examined; and many facts entirely new to science are said to have been discovered. Many of the bones show traces of surgical operations, which must have been carried out by flint instruments. Some of them have indications of fractures that have been treated and cured; and more than one of the skulls had been trepanned.



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## EDITORIALS

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### TWENTIETH CENTURY REQUIREMENTS

We have known for some time that employees occupying responsible positions with banks, corporations, trust companies, insurance companies, commercial houses, etc., were required to furnish a bond to their employers, this usually being by a bonding company at a rate corresponding to the financial and other responsibilities of the position. It is also well known that employees so bonded are under surveillance, not only by the bonding corporation, but the institution employing them also. This surveillance includes their habits, both in public and private, as well as associates, male and female. Late suppers in questionable company, theater parties, automobile rides, time, place and conduct when on vacations or week end trips out of town are all noted by secret agents of the bonding company, as well as of the employers. Any lapse from strict habits of temperance, or conduct in general, late hours, questionable companions, or visits to places of shady morals: saloons, all-night resorts, etc., brings in exceptional cases a warning, usually, however, a request to be relieved from the bond or resignation of the employee.

An instance in point recently came to the writer's knowledge. The

paying teller of an old established and conservative bank in a large city in the east, who had been employed in the same institution as boy, youth and man for twenty years, well respected by his friends and acquaintances, trusted by his employers, grew to be a regular attendant at a city club, of which he was a member; whether because he found a more congenial atmosphere there than at home, we do not know. He was sociably inclined and popular; indulged in cards, took two or three drinks of whiskey during the evening, had been seen with other members of the club automobile riding, once with his face somewhat flushed, laughing and joking with some women in the car. The next day an agent of the bonding company notified the bank president that his company wished to be released from the bond given the bank for its paying teller's good behavior. The man was asked for his resignation, and thus came to a halt a most exemplary and promising career. This is not an exceptional case. Happily, however,—for the family and friends, as is usual, in like instances—the public never knew why Mr. B. left the bank.

This editorial is not a preachment; does not reflect the writer's attitude towards men's conduct; nor is it a temperance lecture. The reason for its appearance in a medical journal is its bearing on the attitude of employers to exact safe, sane, skillful service from all those hired to do a special work, and especially those who treat the sick. The bank teller had committed no crime it is true, but was he to be trusted? Is a man when under the exhilarating—or contra—the depressing effect of alcohol as sure of himself; has he the same cool dispassionate judgment, the steady eye, hand, as when perfectly normal? From the bank president's viewpoint, the man who drinks may in a moment of unusual optimism favor "a friend" by loaning him money, signing his note, endorsing his check; engage with him in a questionable financial scheme; go with one equally optimistic—in an automobile—to a gambling house, or to call upon some fascinating ladies: visit a café, drink and be seen by a depositor in the bank.

Now, if this can be said of one whose sole responsibility rests with handling other people's moneys, what about the man who has in his care or keeping others lives?

We are all acquainted with good, brilliant men, physicians, sur-

geons who have had a large practice, but are not doing so well now. Others in the same line are doing better than formerly. Is it for lack of confidence in the older or increasing respect for the skillful attainments of the younger? This is an age of discernment; we are growing acute, learning more about health matters; are more appreciative of sound bodies, demand the best in all things that promote and conserve the health of ourselves and ours. It will shock those of the old school to be told that they will not be tolerated in sick rooms with the smell of whiskey on their breath, but the fact remains that strict abstinence from indulgence, if not now universally demanded, is rapidly approaching. He who observes will learn.

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### DO WE PROGRESS IN SPITE OF OURSELVES

The duty of the police is primarily to preserve order, incidentally to protect man from himself. By police we include not only city police officers and firemen, constables, magistrates, judges, but sheriffs and justices for the county, judges for the state, as well as the state militia; court officials and lawyers. For the Government we must have the secret service, various minor officials, as well as the courts and their attendants, Government collectors of duties, commissioners for the collection of revenue, the Marine Revenue service, Marine Hospital and Public Health service, the Marine Corps, the Army and Navy. Then we must have our state Legislatures and Senates, to make and unmake laws for our protection; for all of which an enormous sum is needed annually, entailing great hardships to the citizen. All this to protect man against his neighbor and himself. It is impossible to conceive of a situation without this protection. Are we then but partly civilized, humanized? Is this refinement, courtesy, humanity, but a veneer, a thin layer of polish for the purpose of concealing our true selves? Are we furbished up, whitewashed, perfumed, our persons covered with beautiful and costly habiliments only to cover the savage that lurks within our hearts and minds? Are we law abiding citizens from fear, the dread of loss of prestige, position, wealth, friends; the ban of society, fear of physical injuries from those stronger than ourselves, confinement in the goal?

We boast of 10,500 police officers, a greater number of state

militia, thousands of firemen, county and city officials here in this great city of Greater New York, and yet have to employ private aid—independent detective agencies—to run to earth criminals. Have we then to seek protection from our protectors?

Withal this, the good old world is no worse to-day than ever before, indeed we are sure that its inhabitants are to-day vastly superior than in any other age. Man is more industrious, more skillful, more human; women more beautiful, our children better schooled, healthier, while we all are better fed, clothed, housed and happier. No other peoples had so much to live for, so much to be thankful for. The advance in science and mechanics, the freedom from epidemics, greater length of life, control of disease, cleaner amusements, cleaner bodies, purer minds and souls, while every year, aye every month, week, hour insures greater progress still. Is all this then in spite of ourselves, the continued evolution of life, environment, and must we believe that progress comes largely because man is protected against himself? Will we continue towards greater freedom, greater happiness, still purer minds and souls, or will history repeat its oft told story of retrogression, reversion to the primitive type and lose our pride of self with destruction of our glorious age? Will future ages be peopled with but a few of us of this or some centuries to follow, by the survival of the fittest of this, or will we be saved from ourselves by an united peace power of the world?

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### DYSPEPSIA AND RESTAURANTS

The American man or woman is *facile princeps*, so far as eating in restaurants or hotels is concerned. It may be stated with no fear of denial that in no cities of the civilized world are there fewer meals cooked and eaten at home than in the cities of this country. Into the reasons for this universal American city habit, this is not the place to inquire. The hygiene of eating, however, comes well within the province of a medical journal. It seems to be a common opinion that dyspepsia worries and distresses the inhabitant of America to a greater extent than falls to the lot of men or women of other lands. In the main, this opinion is justified. The contention has also been made frequently that one potent cause of this condition of affairs is

the kind of food generally eaten here and the way in which it is eaten. More rich and indigestible food is widely consumed on this side of the Atlantic, because there are a greater number of people who can afford to buy such food. In the countries of Europe, the poorer classes are compelled to eschew rich food, and to live on plain fare, simply on account of their lack of money. Their healthy thriftiness is compulsory. It may then be taken for granted that more rich food is eaten here than elsewhere and thus one reason for indigestion seems to be made clear. The assertion is likewise freely made that the manner in which Americans eat and the conditions under which they feed are responsible for stomach troubles. This is true, too, so far as it goes. The restaurants of a big city are generally crowded for an hour or so in the middle of the day with a mass of humanity, who often swallow food far too quickly, drink too much coffee and have their meals under conditions of noise and bustle, by no means conducive to good digestion. The charge has been made also, on more than one occasion, that the methods pursued in cooking the food in some restaurants are not calculated to promote good health. Probably this is the case. As a rule, though, the restaurants of this country are generally cleaner than those of certain parts of Europe, of London, to wit.

Attention was called recently in the editorial pages of an esteemed British medical contemporary to the waiter's napkin in presumably British restaurants. It was pointed out that the waiter's napkin, his badge of office, is used for a variety of purposes other than those for which it is intended. The napkin is said to be impartially used to dust the waiter's trousers or shoes, wipe his perspiring forehead and even on occasions to blow his nose. Shortly after he will be engaged in rubbing the plate of his patron with the selfsame piece of napery, which when not in active use is generally reposing in the armpit of a frequently dirty and generally greasy evening coat. No doubt in New York and in the other cities there are uncleanly restaurants, frowsy waiters with dirty napkins, but we may lay the flattering unction to our souls that they are less common here than in Europe. Still we are as a nation a dyspeptic nation and this national failing is due principally to our habits of eating. Cleanliness should be observed scrupulously in all public eating places, for it must be borne



in mind that slipshod and uncleanly modes of serving food "clog the hungry edge of appetite." Digestion is greatly favored by clean surroundings.

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### ILLUMINATING GAS AND THE PUBLIC HEALTH

Professor William T. Sedgwick, in an illuminating address before the Harvey Society, detailed how, before 1880, coal gas was made for lighting purposes by the destructive distillation of bituminous coal, coke being a residue, and from three to six per cent. of poisonous carbon monoxide being evolved in the process. In 1880 by a new process, water gas was perfected: Steam is passed over glowing carbon; the steam is decomposed; the molecules of the hydrogen and the oxygen are rearranged in the process; H and CO (carbon monoxide) are evolved. A heating but not an illuminating gas is thus produced; which must therefore, for lighting purposes, be enriched by the addition of naphtha, gas oils or other tar products. In the making of this water gas 18 to 30 per cent. of the poisonous CO is evolved.

This newer water gas was made more readily than the coal gas; but it has proved much more poisonous than the latter; so that in Massachusetts water gas manufacture was prohibited for ten years. And in those ten years there were but half a dozen deaths in that State from gas poisoning. Experiments upon animals showed that four jets might be turned on in a small hotel room all night; and dogs confined therein would be found poisoned but not dead in the morning. But in the same experiment done with water gas the dogs were all dead at the end of seven hours.

People were overcome by coal gas, but rarely beyond resuscitation. On the other hand, since 1890 (when the law prohibiting water gas was repealed) there have been at least 1200 deaths from gas poisoning in Massachusetts; about half of these deaths were by suicide and some 600 by accident.

An illuminating gas (coal or water) does not always kill, but it induces a great deal of illness, such symptoms as headache, malaise, nausea and the like being evidenced. Nor does all the leakage come from cocks carelessly or ignorantly turned on, or by gas blown out by those unfamiliar with its use. There is oftentimes leakage from

defective connections in the walls or under the floors of bedrooms. Indeed, there have been fatal cases of gas poisoning in houses employing no gas whatever, but only electric lights. In the winter, for example, the windows are all closed against the cold; the ground air from below rises to the top; this makes of the house a veritable draught chimney. The gas main in the street may leak; the gas will diffuse through the ground into an uncemented cellar, and thus suffuse such a house which, although it may have no gas connections whatever, may nevertheless have its dwellers poisoned even fatally. Thus cold weather is attended by many gas accidents.

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### TALISMANS

Talismans were natural objects, generally imagined to be marked like the signs of the planets or zodiac; sometimes, however, they were precious stones. They were confounded with amulets, which Arabic word means something suspended: Charms (L. Carmen, a song) referred to written spells, groups of words often without sense, as "Abracadabra." During the crusades faith in the virtue of precious stones was universal; to each stone special properties were attributed. The heliotrope or blood-stone "stancheth blood, driveth away poisons, preserveth health, yea, and some write that it provoketh raine and darkeneth the sonne, suffering not him that beareth it to be abused. A topaz healeth the lunaticke person of his passion of lunacie. The garnet assisteth sorrow and recreates the heart; the crysolite is the friend of wisdom and the end of folly. Dr. Dee (the great quack) had a lump of cannel coal that could predict." In the fancied resemblance found among talismans none were more extraordinary than those associated with color. Because Avicenna had said that red blood corpuscles moved the blood, red colors were employed in diseases of the circulation. In 1765 the Emperor Francis I was wrapped up in red cloth to cure the small-pox—and he died. Flannel dyed nine times in blue was good for scrofula. Pope Adrian is said to have had a curious amulet consisting of dried toad, arsenic, tormentil, pearl, coral, hyacinth, smaragd and tragacanth. Arsenic amulets were worn during the plague in London on the principle that one poison would prevent the entry of another.

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We are informed by Dr. Rollin H. Barnes, editor, that the September number of *The Proctologist* will contain the papers and discussions of the American Protologic Society for 1912. Dr. Barnes' address is Metropolitan Building, St. Louis, Mo.

## DIGEST OF CURRENT MEDICAL LITERATURE

*Iodine the Antidote to Carbolic Acid Poisoning.*—In the *Lancet* of August 3d, 1907, J. Maberly published three cases of carbolic acid poisoning which had completely and rapidly recovered after the administration of tincture of iodine as an antidote. In one of them the treatment was not applied until 30 hours after the ingestion of the poison.

The following case (*Transvaal Medical Journal*, June, 1912) confirms in a striking manner the statements made in that paper as to the power of iodine to counteract the ill-effects of carbolic acid on the mucous membrane and tissues generally.

The patient was a white child, 18 months old.

According to the statement of his mother and elder sister, he must have swallowed quite a tablespoonful of pure Jeyes fluid from a bottle which had been left on the floor of the room in the temporary absence of the mother. When the latter returned, she found the child lying on the floor in a collapsed condition with the empty bottle beside him. She did what she could for the child and sent to the nearest chemist, who telephoned for me, stating at the same time the nature of the case. Taking some tincture of iodine with me, I reached the house about 6.15 P. M., twenty minutes after the accident. The child was then in his mother's arms, evidently in great pain, crying hoarsely, with mucus running from his mouth; the lips and interior of the mouth were very red and inflamed. The mother had been trying to force the child to drink some milk, but it was quite unable to do so.

I mixed about half a teaspoonful of tincture of iodine in about half a wineglassful of water, and this quantity the child gradually swallowed without much difficulty and with very evident relief. Before leaving, I mixed another similar quantity of the antidote and told the mother to give it in two doses at intervals of an hour.

The next morning I received a message to say that the child was quite well.

Two days after I called to see the patient and found him perfectly normal except for some sore places about the chin and two patches on the cheeks, which bore witness to the powerful effects of the Jeyes fluid where it had come in contact with the skin and had not been neutralized.

At the time of the accident I was not aware that the face had been smeared with some of the fluid, or I should have taken the precaution to wash it with some weak solution of iodine and so have avoided any unpleasant effects.

The mother informed me that shortly after the last dose of iodine, given about 9 P. M. on the 20th of March, the child drank a quantity of milk and ate bread and butter; the only thing that worried him was where the Jeyes fluid had not been neutralized.

Iodine forms a harmless soluble compound with phenols, and its affinity for phenol is very much greater than that for living protoplasm, hence its unique value for all forms of carbolic acid poisoning.

The quantity of iodine administered in this case—at least a dram of the B.P. tincture—was large considering the age of the child, but I felt certain, from the statement of the parent, that a large quantity of Jeyes fluid had been swallowed, and experimentally I have proved that about equal quantities of tincture of iodine and phenol are complementary, hence the necessity for a dose of the antidote, which in ordinary conditions would itself be injurious, but which in this case was not only harmless but beneficial.

From experimental and theoretical considerations there can be no doubt that the converse of the treatment of carbolic acid poisoning by iodine, namely, that of the treatment of iodine poisoning by solutions of carbolic acid, would be equally satisfactory; but so far no opportunity has occurred in my practice of actually testing the question on a patient.

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*Constipation* has both general and local causes. Among the former are the tendency in the female sex, advanced age, sedentary habits, irregularity of hours for defecation, the persistent use of cathartics, improper diet (leaving either too much or too little residue, or poorly cooked food, or food not sufficiently chewed), lack of fluid; there are many general diseases in which costiveness is a feature—anemia, neurasthenia, hysteria, diabetes, acute infectious diseases, chronic cardiac, hepatic and intestinal disorders and diseases of the brain and spinal cord. Local causes of constipation are intestinal atony; pressure of tumors or of a gravid or retroverted uterus; fecal masses, foreign bodies or strictures; diminution of digestive secretions, especially bile. In infants, causes are congenital defects, lack of fat in milk, poor digestion, and insufficient consumption of water.

In some people fecal retention for even a day causes great languor, headache, backache, loss of appetite, coated tongue, bad breath, abdominal distress; in others the bowels may not move for a week yet cause slight symptoms. Dysmenorrhea is common; hemorrhoids and periodic diarrhea frequently occur in chronic cases; ulceration and perforation or intestinal obstruction are less often causative.

In chronic cases, especially in women, there are acne and sallow complexion.

Chronic constipation is oftentimes most difficult to cure by reason of pernicious habits as to alimentary functioning. By way of prophylaxis, and in mild cases, we urge a systematic hour for defecation (regardless of whether there is a "call" or not), moderate exercise, sufficient fluid with the diet, fruit and rough foods, with considerable undigested residue, as oatmeal and Graham bread. A glass of water on rising; abdominal massage following the colon; bandage to a pendulous abdomen; defecation not occurring at the proper time, a plain or soap suds enema or a glycerin suppository: such are non-medicinal measures. As to drugs, these should be avoided in so far as is possible; and only the mildest that are efficacious should be employed. If given, drugs should be varied frequently to avoid a habit; and they must be alternated from time to time with enemata or glycerin suppositories. The dose is, whenever possible, decreased. In all cases the cause must be discovered, if we are to treat appropriately. In heart cases, especially, do we counsel against straining. In anemia iron is indicated for a sluggish liver cholagogues, and so forth. In severe and prolonged constipation, before beginning regular medication, give calomel gr.  $\text{II-V}$ , with sodium bicarbonate gr.  $\text{x}$  at night, followed next morning by Rochelle salts ounce  $\frac{1}{2}$ - $\text{I}$  or a like saline. The best drugs for constipation, to be given at bedtime, are fluid extract of cascara (dram  $\text{I}$ ): compound licorice powder dram  $\text{I}$ : or pills containing combinations of aloes, belladonna, strychnine, podophyllin and colocynth. For example  $\text{R}$  aloin, ext. bellad., ext. nucis vom., res. podophylli aa gr.  $\text{I/10}$ ; or  $\text{R}$  ext. cascarae gr.  $\text{II}$ , ext. belladonna gr.  $\text{I/16}$ , res. podophylli gr.  $\frac{1}{8}$ : one to three pills at night. In severe cases:  $\text{R}$  pulv. aloes, gr.  $\text{I}$ , ext. nucis vom. gr.  $\frac{1}{4}$ , ext. bellad. gr.  $\text{I/6}$ , ext. colocynth comp. gr.  $\text{II}$ . One or two at night. Where atony is marked:  $\text{R}$  res. podophylli gr.  $\text{II}$ , quinine sulph. gr.  $\text{VIII}$ , ext. aloes gr.  $\text{VIII}$ , fel bovis inspis gr.  $\text{xvi}$ . Div. in pil, no.  $\text{xvi}$ . One or two at night. Other useful drugs in constipation are, according to the etiology, castor oil, colocynth, croton oil, frangula, gamboge, guaiac, ipecac, jalap. physostigma, potassium and sodium tartrate, scammony, rhubarb, senna, sodium phosphate.

In children drugs must, if possible, be avoided. We increase the cream in the milk, give water or barley water, or oatmeal water, fruits, castile soap suppositories, enemata, abdominal massage. We institute a regular habit of stool; this is absolutely essential. If drugs must be used as in acute illness, castor oil or citrate of magnesia are indicated.



*Miscarriage.*—E. B. Young and J. T. Williams from the results of treatment in 2000 cases find (*Bost. Med. & Surg. Journal*): 1. Spontaneous emptying of the womb takes place in but 13 per cent. of all cases. 2. The likelihood of a miscarriage to complete itself increases with the duration of pregnancy. 3. When it becomes necessary to use artificial means to complete the miscarriage, the finger, followed by the curette in later miscarriages, and of the curette alone in the earlier months, has given uniformly satisfactory results. 4. When the cervix is extremely rigid, it is better to introduce the curette, break up the fetus and placenta, and remove them piecemeal than to attempt to dilate the cervix sufficiently to introduce the finger. Packing the vagina and lower uterine segment is an unsatisfactory and often unsuccessful method of emptying the uterus; no success whatever was obtained in such treatment of incomplete miscarriage. 5. Yet packing is of great value in two classes of cases: exsanguinated women, to stop the hemorrhage and give opportunity to recover somewhat from the loss of blood before emptying the uterus; and in cases when the cervix is very rigid, when a tight cervical pack for 24 hours will soften it so that dilation may be attempted with safety. 6. The results of artificial methods are as good, but not better than where nature has succeeded in emptying the uterus. 7. Artificial methods are necessary in most cases, however, simply because nature has failed. 8. In infected cases it is essential to get rid of the infectious material by emptying the uterus; the particular method employed makes little difference. 9. The later in pregnancy miscarriages occur the smaller is the liability to become infected, but the greater is the likelihood of developing grave septic complications if infection does take place. 10. The mortality is practically the same at all periods of pregnancy. 11. Induced abortions have a greater mortality than accidental; hospital cases admitted after criminal abortion have a 10 per cent. death rate.

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*A Protest Against the Indiscriminate Use of the Organic Compounds of Silver in Ophthalmic Practice.*—Theobald (*Johns Hopkins Hospital Bulletin*, November, 1911) states that whatever be the explanation, whether due to their chemical composition, the greater freedom with which they are used, or to their supposedly greater penetrating power, there can be no doubt that the organic compounds of silver—at all events, those with which the author is familiar, protargol and argyrol—are responsible for many more cases of conjunctival argyria than ever was, or is, silver nitrate.

## THERAPEUTIC PROGRESS

**Air and Light and Sun Baths.**—Montenuis (*La Clinique*, June 30, 1911) considers that the importance of aerotherapeutics is still greatly neglected, and that its value as a hygienic measure is often disregarded. Air treatment is better than hydrotherapy, and is more readily combined with gymnastic exercises. When on the seashore both adults and children ought to indulge freely in light and air bathing. The air bath should be taken early in the morning, when the atmosphere is clear and carries plenty of ozone and when the light is strong. The early rays of the sun are regarded as the most efficacious. During the day a light bath should be taken; the patient will then walk upon the shore in a thin muslin or calico garment through which the rays can penetrate; he thus obtains the tonic effect of sea water, light baths, and barefoot walking on the sands at one and the same time. Such methods are regenerating and strengthening, and the knowledge of the vigor and healing which can be drawn from them requires to be more generally taught.—*Brit. Med. Jour.*

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**Fatty Stools in Graves' Disease.**—Bittorf (*Deutsche medizinische Wochenschrift*, May 23, 1912) says it has been noted in at least six cases of Graves' disease that fatty stools coexisted with alimentary glycosuria. In other words, there was an association here which pointed plainly to a pancreatic disorder or insufficiency affecting both its external and internal secretions. The patients improved remarkably under the internal administration of a pancreas preparation. The rationale is, of course, by no means clear, but the simplest assumption is that the pancreas insufficiency is determined by the hyperthyroidism. This applies to the failure of the external secretion. The participation of the internal secretion is open to some doubt. Fatty stools are rare in Graves' disease, while glycosuria and alimentary glycosuria are not infrequent.

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**Pituitrin as an Oxytocic.**—Hofbauer (*Münchener medizinische Wochenschrift*, May 21, 1912), who was one of the first, if not the first to report on hypophysis extract as an oxytocic (Jan., 1911), has continued to use this agent in Winter's clinic, and now announces his more mature conclusions concerning its usefulness. It is, he states, the best oxytocic we have and his opinion as originally pronounced, has been sustained by practically every one who has tested pituitrin on large material. It is, in fact, the first practicable oxytocic ever found. It materially shortens labor and hence must diminish the chances of infection and exhaustion of the mother and asphyxia of the infant. It also cuts down considerably the necessity for operative intervention, as shown by records of clinics since its introduction.

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**The Treatment of Pellagra.**—In a case report of the treatment of pellagra by F. D. Austin, in the *Charlotte Medical Journal*, June, 1912, we find the following conclusions: I wish to state that salvarsan has acted far better than any other arsenic preparation, or in fact any treatment we have used heretofore. If we will give it intravenously, thereby avoiding abscess formation at the site of injection, or its becoming encysted and not absorbed, but getting into the blood current directly, and watch our patients very closely for the least appearance of the disease, and give doses from time to time, as indicated, but not oftener than two to three weeks, I believe we can cure a large percentage of cases of pellagra.

## AT YOUR LEISURE

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### THE JOY IN DOING

We have always thought that man the happiest who was the most pleased in doing. It matters not we think so much what one does, the joy is in doing what one does well and especially when one excels in what he does. If one himself plans the task and can bring it to a successful issue, the exhilaration is more enjoyable. Show us the man who can do something a little better than can his neighbor, and we will note an unconscious bearing of pride, be he a financier or a street car motorman, differing only in degree. If he is sure of himself, courageous, resourceful, earnest and willing; if he be self-reliant he will take a pleasure in watching his task develop, and when accomplished view it with unspeakable pride. The one, however, who is constantly under orders, without ambition, is but an unwilling workman. The accomplishment of a task does not rest entirely with him who plans it; there must be heads of departments, division superintendents, foremen, and these are the ones who know how to do. The architect who plans the battleship or the skyscraper; the commander of an army or fleet; he who plans a railroad tunnel under a mighty river, or through a mountain, must have those about him trained, skilled, with character who can assemble the battleship, construct the skyscraper; those who could carry on the campaign, bore the tunnel, even in the absence of the artisan, build the fifty-nine story office building, from the plans, even in spite of the quicksand; who is trained to command an army or fleet in the event of accident, and these possess as proud a spirit as he who planned or commanded. The steeple-jack is a picked man, as is the master mechanic. Courage is as necessary in one as the other. The man without initiative, self-reliance, courage, resourcefulness, whose being does not thrill with the joy of doing will never be the master mechanic, or the commander even of a part of a system or campaign. And the pride of having accomplished a task is alike in all men, be he the commander, artisan, architect, or surgeon.

It is not the one who excuses a failure by exclaiming that he had no orders for an unexpected emergency; his resources were not adequate: supplies unequal to the demand. It is he who finds the way regardless of obstacles. The greater glory belongs to General Washington in his success without proper moral or material support; in defiance of Valley Forge, as to the surgeon in spite of unexpected, almost necessarily fatal complications: to the physician in the face of unhygienic surroundings and the lack of proper material or help. It is the will to do, the spirit of effort in the face of discouragements; the joy in doing, that so often compels success in the face of almost certain defeat, that makes the leader in all walks of life.

He who does not exult in doing, in the successful accomplishment of his calling in life, whatever it may be, cannot be a big man, cannot completely enjoy life and this beautiful world, and all that it contains.

## BACK TO NATURE

Back to nature is the slogan of the present faddist. We must adopt the simple life; abstain from excesses of all kinds, eat and drink sparingly and then of simples. Vegetables, one set of propagandists will tell you; fruit and nuts another will urge. One class must have them uncooked, another partly done. Alcohol in any form or quantity is poison, and its indulgence sure to lead to disaster. We must early to bed and early to rise. There must be no mental strain while the morals should be scrupulously guarded. Intellectual pursuits must not be indulged in to the extent of fatigue. One class will advise walking barefoot, another a thorough mastication of the food, a certain number of bites upon each piece of steak or other food eaten, 40, and counts them, 40. Still another will advise you to go in for athletics; a mixed diet with or without wine or even the cocktail; music at dinner; the theater, automobiles, balls, a twenty mile walk each day and—Coney Island—and there you are. All this is to the average man pure nonsense, to the few, bewildering. Because primitive man ate roots and wild berries, lived in caves and went without clothes, does not mean that we of these times should do likewise. Even granting that they lived to a greater age than men of to-day, which is doubtless not true, would it be worth the while? Old age is not always desirable, nor is the life of the hermit in his shack far removed from civilization. Who of this age of a full measure of enjoyment in all that the push of life affords, comfort, intellectual refinement, the pleasure of friends, the ability through his own efforts to secure the luxuries that the age affords, will envy the sordid existence of isolation, the severity of a simple life, merely the capacity to eat and sleep, the right to be idle. It is not length of life, even were such an existence to insure it, at the expense of what the world affords to him that can by his own efforts and a capacity to enjoy them honestly, without injury to his family, friends or neighbors, procure. The times are not out of joint. We do not believe that we are all going to the bow-wows. The world is more beautiful to-day than ever before. Men and women are as virtuous, as free and as full of the milk of human kindness as ever they were. There is more to work for, our children are happier, better educated, better dressed, have fewer cares, are happier than those of any previous age. While our wives—God bless them—are more companionable, better fellows, because the progress of the human race has made them so. We indulge ourselves and them without offense, and why not? The good old world moves and we move with it.

Let us be sane men and women: accept the good things of our present life, using them without offense to ourselves or others; put by a modicum of our income for emergencies, be temperate in all that we do, but live like men and women, and not like the unfortunate, compelled to exist because of poverty, disease and environment. And here creeps into our souls the agony and sorrow for those with a capacity to enjoy life but without the means. For such we feel and should do what we can to help them. And are we

not meeting these obligations with greater success than ever before in the history of the world? Think of the millions which are given yearly to help the unfortunate; hospitals, asylums, dispensaries, public schools, libraries, etc.

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## MUSIC

Music begins where words end. It is the universal language of man. It belongs to the soul. "There is music in all things, if men had ears," sang Byron.

But there's a music beyond that of the noblest symphony ever composed, beyond that of the finest note sung by tenor, soprano, contralto or bass, beyond that which peals from the organ or comes from choir or orchestra in whelming waves of sound. There's a music beyond that of the unheard rhythmic roar of the scientist's atom, or the astronomer's singing spheres.

There's a music beyond the soft, gentle cooing of the dove, or the tender note of the nightingale in the moonlit glade, beyond that of the moan and sigh of the wind in the trees, beyond that of the rippling babble of the brook or the splash of the long wave-line on the sanded beach.

There's a music beyond the clash and crash of bands as men rush to conflict, beyond the soft cadence of the lover's lute, as he sings to his sweet.

It is the great diapason of humanity!

Humanity which, in its moil and toil, in its agony and martyrdom, struggling ever onward and upward, sings to the Unknown God its *Te Deum*.

—JOHN C. FREUND, in *The Pleiades Year Book*.

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## THE OLD OAKEN BUCKET

"The old oaken bucket,  
The iron-bound bucket,  
The moss covered bucket  
Don't hang in the well.  
The doctors dismissed it,  
Health officers cussed it;  
And threw the germ crusted  
Old bucket to—well—  
At any rate, the old song's dead;  
And we use a sanitary cup instead."



## MISCELLANY

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### MUTES TAUGHT TO UTTER WORDS

Scripture finds the following exercises typical of those used in the best schools for deaf mutes: Breathing through the nose and mouth are first taught. The teacher breathes through the nose on a slate or a mirror and shows the two moist spots; the child learns to imitate this. The mouth breathing produces one spot. The low position of the tongue is necessary for proper speech. It is taught by showing the position and using the mirror and by a breath exercise. The latter rests upon the fact that the child cannot produce a good sized spot on the slate unless he keeps his tongue down. Tongue gymnastics are next used to limber up and train the muscles which have never received the proper development. The tongue is protruded, retracted, moved to each side, turned up, etc. Tongue training preparatory to various consonant sounds is introduced. Vibration of the vocal cords is taught by feeling. The pupil puts his hand on the teacher's chest, and also on his own. He thus learns to make a tone. He learns to raise and lower the voice and by careful drill is able to make a fairly good tone. The physiological alphabet consists of a set of diagrams giving the typical position of the tongue and lips for the chief sounds of the language. Combinations of consonants and vowels are now read at sight. Through these combinations, words and sentences are developed. Lip reading of words and sentences is taught by having the patient watch the teacher's lips while she distinctly enunciates some word. Thus he learns to pick up objects off a table, to point out parts of the body, to obey commands, and so forth. When deafness is acquired after the person has learned to speak, the teaching of lip reading should begin at once. The voice then retains its natural character; and the person can continue consistently with his education.

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### EUTHANASIA

Maeterlinck, in his new book "Death," declares that all our knowledge only "helps us to die in greater pain than the animals that know nothing. As science progresses it prolongs the agony, which is the most dreadful moment and the sharpest peak of human horror, for the witnesses at least. . . . All the doctors consider it their first duty to protract as long as possible even the most excruciating convulsions. Who has not, at a bedside, twenty times wished to throw himself at their feet and implore them to show mercy?" This prejudice will one day be regarded as barbarian, "a relic of the times when

humanity was convinced that any known torture was preferable to those awaiting us in the world unknown." Maeterlinck predicts that a day will come when science will no longer hesitate to shorten our misfortunes, when life, grown wiser, will depart silently to its hour, knowing that it has reached its term, even as it withdraws every evening, while in sleep, knowing that its day's task is done.

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#### BENVENUTO CELLINI

in his intensely interesting *Life*, related how there arrived in Rome a surgeon of the highest renown—Maestro Giacomo da Carpi. "This able man undertook the most desperate cases of the so called French disease." He professed to work miracles in the treatment of such cases by means of certain fumigations; but he only undertook a cure after stipulating for his fees, which he reckoned not by tens but by hundreds of crowns. He was a man of much learning, who used to discourse wonderfully about medicine; and a person of great sagacity, who did wisely to get out of Rome. All the patients he had treated grew so ill that they were a hundred times worse off than before he came. He would certainly have been murdered if he had stopped.

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#### EMOTIONAL JAUNDICE

The case is reported of a girl of 18 who, having previously suffered from gastric symptoms, evinced jaundice twenty-four hours after seeing a woman knocked down by a tram car. This recalls Dr. Oliver Wendell Holmes' observation:

"I remember a young wife who had to part with her husband for a time. She did not write a mournful peon: indeed she was a silent person and hardly said a word about it. But she quietly turned a deep orange color with jaundice." Such instances, though rare, evidence an interesting phase of psychic reaction upon the human economy.

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#### MEDICINAL FOSSILS

In all the larger cities of China fossil remains are sold as "dragon's bones" and "dragon teeth" and used medicinally; to which end they are fried, boiled in wine, or even eaten in their natural state. Nearly all collections of Chinese fossils have been bought up from the druggists, who fortunately keep accurate records as to the provinces and even the localities from which they have been brought. This subject is thus interesting to the palaeontologist as well as to the medical men.

## BOOK REVIEWS

**PELLAGRA: ITS HISTORY, DISTRIBUTION, DIAGNOSIS, PROGNOSIS, TREATMENT, ETIOLOGY.** By STEWART R. ROBERTS, S.M., M.D., Associate Professor of the Principles and Practice of Medicine, Atlanta College of Physicians and Surgeons, Atlanta, Ga.; Physician to the Wesley Memorial Hospital. With eighty-nine special engravings and colored frontispiece. C. V. Mosby Company, St. Louis, 1912. Price \$2.50.

Here is a work on Pellagra, a disease but recently studied in the United States, although, as investigations have shown, prevailing to an alarming extent, particularly in the Southern States. It is written for the student, as well as the practising physician; is broadly and scientifically treated, bringing all the information concerning the disease up to date. While every chapter is in itself interesting and illuminating, those on diagnosis, treatment and particularly the one on cause will be read with great interest and benefit.

It is to be regretted that we cannot yet determine the definite cause of this widespread and distressing disease. In the chapter on Etiology, to which we turned at once, we find that notwithstanding all the study given pellagra, the profession is divided, part holding, with the older Italian school, that it follows a diet of Indian corn; others, that like syphilis, malaria, trypanosomiasis (sleeping sickness), leprosy, the hookworm disease, etc., it is an infectious disease. Sambon and Allesandrini of Italy hold that it is caused by a species of nematode worms of the genus *filariæ*, and that its prevalence along streams where the simulum fly (buffalo gnat of the South) is found indicates strongly that it is this insect which is the carrier. No theory has as yet been proven. Arsenic in some form has proven the most successful remedy to date. This work of Dr. Roberts should belong to every physician interested in pellagra.

**TEXT-BOOK OF MEDICAL JURISPRUDENCE AND TOXICOLOGY.** By JOHN J. REESE, M.D., late Professor of Medical Jurisprudence and Toxicology in the University of Pennsylvania. Eighth Edition, Revised by D. J. MCCARTHY, A.B., M.D., Professor of Medical Jurisprudence in the University of Pennsylvania, etc., etc. P. Blakiston's Son & Co., Philadelphia, 1911.

In this edition the reviser has made numerous changes from the former one in order to bring it up to date. This applies particularly to the chapters on Insanity and Commitment of the Insane. The interesting subject of anaphylaxis, as well as that of bismuth, has been added to the section of toxicology.

The fact that this work has gone through eight editions is proof that it fills a place in list of text-books. It will be found better adapted to the use of the student of law or medicine as a text-book than the voluminous works issued by other authors. The section on Toxicology will be found especially interesting to the medical student.

**INFANT FEEDING.** By CLIFFORD G. GRULEE, A.M., M.D., Assistant Professor of Pediatrics at Rush Medical College. Attending Pediatrician to Cook County Hospital. Octavo of 295 pages, illustrated. Philadelphia and London: W. B. Saunders Company, 1912. Cloth, \$3.00 net.

The author states in his preface that in the preparation of this volume he has endeavored to first bring our knowledge of the scientific process which underlies infant feeding up to the present, second to put forth the practised application of these principles in such a way that they can be grouped by one

no more familiar with the subject than the practising physician. A worthy ambition, which we believe he has seen gratified.

The subject of infant feeding has been one of very great interest to numerous physicians, if we are to judge from the many volumes which have appeared in recent years, and while many have admirably met the requirements, we predict that Dr. Grulee's work will prove of such worth as will insure a large list of readers.

It would be impossible to detail the many excellent features of this work in a journal review. We can, therefore, call attention to it but briefly. Part three will, we believe, prove most interesting. It contains well-written, up-to-date chapters on Artificial Feeding, a subject of very great importance, both to the infant and the physician. Part four, Nutrition and Other Conditions, with chapters on Diathesis, the Nervous Infant, Rickets, Scurvy, Eczema, Pyloric-stenosis, etc., will prove profitable reading.

The book is handsomely printed on excellent paper, contains numerous illustrations, many of them colored.

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This volume on General Surgery is edited by John B. Murphy, A.M., M.D., LL.D. It reviews the literature on general surgery for 1911, as its title indicates, covering a wide range, and including Anesthesia, Radiumtherapy, New Instruments, Operative Technic, Wound Healing, Tetanus, Tumors, The Blood Vessels, Bones, Joints, Skull and Brain, Face and Mouth, Esophagus, Thyroid, Stomach, Intestines, Hernia, Gall Bladder, etc. Those who have not had access to the world's literature on these subjects can find in these 600 pages all that he can absorb, in abstract done under the supervision of a master surgeon.

#### **REPORT FROM THE PATHOLOGICAL DEPARTMENT AND THE DEPARTMENT OF CLINICAL PSYCHIATRY, CENTRAL INDIANA HOSPITAL FOR THE INSANE. Volume IV, 1909-1910 and 1910-1911. Indianapolis, Ind.**

This volume will be found of interest to all those who give thought to or study of insanity. In addition to statistical matter, always valuable, we have here a number of original articles well worth careful study.

#### **INTERNATIONAL CLINICS. Vol. II, twenty-second series, 1912. J. B. Lippincott Company, Philadelphia and London.**

As is usual with this series of quarterly volumes devoted to medicine and its collateral branches, this number is up to the average, an average, by the way, that excludes comparison. Especially noteworthy is the symposium on Anesthesia, containing as it does no less than twelve original articles covering the subject from all points of view. Then the article on Eugenics by Meyer Solomon, Junior Assistant Physician, Government Hospital for the Insane, Washington, D. C., will be read with much profit. The illustrations are numerous and well executed, some six being colored plates.

# SHAKSPERE'S Medical and Surgical Knowledge

By JOHN W. WAINWRIGHT, M.D., New York

Including References to Anatomy, Physiology, Medicine, Surgery, Obstetrics, Nervous and Mental Diseases, Therapeutics, Dietetics and Hygiene, Ethics, Jurisprudence, Toxicology and Pharmacy. Some 135 Quotations, giving Play, Act and Scene, with Explanatory Notes and an Introductory Chapter with copious cross index.

## REVIEWS:

In the volume before us the writer has, by his own road, come round to this identical point (that we do know a great deal of the real Shakspeare), and made it clear to his readers by a most abundant and interesting array of quotations from the whole field of Shakspeare's works that if he had not actually studied medicine, his mind was yet a storehouse of the medical knowledge of the day. In the scholarly preface to this delightful little book the author points out that the same may be said of his knowledge of theology, or law, or astronomy, etc. Many of the quotations are striking, but not the least interesting feature will be found in the running commentary following the quotations themselves. The frontispiece is an excellent photogravure from a photograph of the portrait which was the original of the Droeshout engraving in the first folio edition edited by Heming and Condell.—*New York Medical Record*, Feb. 15, 1908.

Dr. Wainwright has been delving for that in Shakspeare which refers to medicine. He has certainly gotten together a large and varied assortment of interesting quotations. Running comments add interest and aid in bringing out points or ideas that a cursory reading might fail to catch. Medical men who are lovers of Shakspeare—and there are few that are not—will find in these selections both amusement and instruction. The book is tastefully and beautifully printed and bound, and contains a photogravure reproduction of the Droeshout portrait of Shakspeare.—*Journal American Medical Association*, January 25, 1908.

Many of the quotations adduced to show the dramatist's knowledge of the physiological functions of the body are certainly very striking, and they are a valuable contribution to the study of the many-sidedness of Shakspeare.—*The Hospital* (London), April 13, 1907.

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## ORIGINAL ARTICLES

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### THE INDICATIONS AND CONTRAINDICATIONS OF CREOSOTE IN TUBERCULOSIS

BY MAURICE FISHER, M.D.

*Visiting Physician, Tuberculosis Ward, Montefiore Home and Hospital; Adjunct Attending Physician, Lebanon Hospital  
New York*

There are very few sufferers from tuberculosis who have not been given creosote in some form. In fact, if for one reason or another, a tuberculous patient is not advised by his physician to enter an institution, or remove himself to a more salutary climate, he is sure to be given a prescription calling for creosote, or its derivatives. Very little attention is often paid to the harm this drug may inflict, and I have seen patients who have been damaged by this therapeutic agent in a manner which was deplorable and inexcusable. Being one who has used creosote in his practice for years, and having found it a valuable remedy that has given relief to many sufferers from tuberculosis, I believe that I am entitled to speak of the indications and contraindications of this drug without prejudice.

I do not consider creosote a specific in tuberculosis; tuberculin has not yet been proclaimed as such even by the most enthusiastic of its advocates. Nor do I agree with Burlureaux who says that intolerance to creosote is a good sign of a bad prognosis. I have seen many tuberculous cases that could not bear creosote, and who ultimately got well. Yet, it appears to me that if intelligently administered, creosote is as good a drug as we have in our materia medica to diminish or cure the evils of tuberculosis.

It is a peculiar fact not generally appreciated that creosote often provokes general and local reactions which are analogous to those provoked by tuberculin. Usually with excessive doses, but occasionally also with minimal doses, after taking creosote for several days

the patient is overtaken with a feeling of chilliness and fever, pain in the limbs, back and joints, weakness, fatigue and insomnia. Malaise, gastric disturbances and even vomiting, in patients whose stomach has heretofore not given any trouble, now make their appearance. As is well known quite a considerable part of the creosote ingested is eliminated through the bronchial mucous membrane. This often excites a focal reaction, which at times reminds one of the focal reaction of tuberculin. Of course, in the case of tuberculin a single dose is usually enough to produce this reaction, while in the case of creosote it is only the more or less prolonged administration that is apt to produce this effect. In such cases sanguineous expectoration and even hemorrhage is not uncommon, while the lesion in the lungs may be aggravated or even spread. Râles, which were previously absent or scanty, now make their appearance and the general aspect of the patient is aggravated.

If the administration of creosote is persisted in after these symptoms, as I have seen many times, the condition of the patient may be aggravated to an extent as to render the prognosis hopeless in a case that previously had a fair outlook. Smoky urine, like that of phenol poisoning, is now seen; the patient complains of a taste of creosote in his mouth. This may be followed by vertigo, profuse perspiration, chilly sensations, and even cyanosis and collapse, as I have seen in one case, which was greatly relieved by the discontinuance of the drug.

Bearing all this in mind we can say that creosote is contraindicated in all cases in which it provokes gastric disturbances. If after taking moderate doses of the drug the appetite does not improve, it must be discontinued. It is also contraindicated in all febrile cases, in which the temperature is 100° F. or more, and also in all progressive cases, because they are the ones that creosote is most apt to cause general and local reactions, and spread the lesion in the lungs. Those subject to hemoptysis must not be given any creosote, even blood tinged sputum should serve as a warning for the immediate discontinuance of the drug. Moreover, one must not wait for the appearance of smoky urine, but carefully watch for albuminuria which is often brought about by this drug. In general, albuminuria is a strong contraindication to the administration of creosote.

It is thus seen that the routine administration of creosote to all consumptives is a dangerous procedure. I have often seen great improvement following soon after the discontinuance of the drug which has been given to persons showing a marked intolerance to creosote, but which has been disregarded by the attending physician.

The chronic, sluggish, afebrile cases of tuberculosis, especially those characterized by profuse expectoration, are often greatly benefited by creosote, if intelligently administered. In these cases we often note a great and striking improvement in the digestive functions. Inhibiting, or destroying the tubercle bacilli that are swallowed by consumptives, as well as other microorganisms, the appetite and digestion may thus be improved; fermentation in the stomach and intestines diminished, and the bowels may be urged on to act without cathartics. Many cases of dyspepsia, so often seen in the tuberculous, are cured by the administration of creosote. The general condition of the patient improves with the improvement of the gastric and intestinal functions, an increase in weight is not slow in making its appearance, which has an excellent effect on the psychic state of the patient, who becomes encouraged and hopeful.

Another sign of tolerance of creosote is a diminution in the amount expectorated, and we can often see purulent sputum which had a disagreeable odor disappear and be replaced by mucous material which is odorless. The cough under these circumstances is greatly ameliorated, and the nontuberculous bronchitis, tracheitis and laryngitis which are frequently met with among consumptives, are cured.

In fibroid phthisis, characterized by profuse expectoration of pus, creosote is often the best remedy we have. I have seen cavities dry up, at least temporarily, as a result of the proper administration of this drug. It is important to remember that large doses are not at all necessary in these cases. Many cases of intolerance to creosote are really intolerance of excessive dosage. Small doses, three to five drops three times a day given over a prolonged period, produce good results, especially if the medical attendant is watchful for the general and local reaction which were detailed above. I have seen many cases in which the good effects of creosote were quite lasting.

Last, but not least, a good product must be obtained. It is a well-known fact that the cause why creosote fell into disuse soon after its introduction by Reichenbach in 1830 was mainly the bad quality of the product. Good creosote fit for therapeutic administration must be obtained from the fractional distillation of beech wood tar. The creosote dispensed in many pharmacies is a product obtained from the distillation of bituminous coal, and contains many impurities which are not well tolerated. A good preparation of creosote contains twenty-five per cent of guaiacol, but many of the products dispensed under this name, even when obtained from beechwood, contain much less.

The best way to administer creosote is in capsules. It does away with the disagreeable odor which cannot otherwise be disguised.

Moreover, the mucous lining of the stomach and intestines is not as easily injured by creosote as that of the mouth and pharynx, so that a great deal of the disagreeable local effects are done away with through the capsules. I do not believe that guaiacol, which is at present obtained synthetically, contains all the active principles of creosote, and in my experience it is not a good substitute for the original drug. Under the circumstances even the carbonate of guaiacol is not as effective as creosote, although it is less likely to cause digestive disturbances.

Since creosote carbonate is no more a patented preparation in the United States, it can be prescribed even to the poor, and inasmuch as it contains all the good qualities of creosote without many of its bad qualities, it should be given preference. It is neither caustic nor toxic, it is not very disagreeable in odor or taste, and it can be more easily administered than creosote. In addition to this it is important to remember that creosote carbonate has the same physiological action as creosote, but it acts slower. It is decomposed in the intestine very slowly and liberates creosote in small doses which is gradually being absorbed into the circulation. I have of late used it almost exclusively in my practice and am under the impression that it is more easily tolerated than creosote. It can be given from fifteen to twenty-five drops per day in capsules, or in milk, coffee, or chocolate.

Summarizing, we find that creosote is indicated in all cases of tuberculosis characterized by profuse expectoration derived from a pulmonary lesion, or its concomitant bronchitis or tracheitis. In these cases we can often expect a diminution in the cough and the amount of mucous or pus expectorated; increase in the appetite, gain in weight and an improvement in the general condition of the patient. The drug is contraindicated in all cases that expectorate little or nothing; in all febrile cases, and especially in those in which it provokes gastric disturbances. Albuminuria is another contraindication, as is tachycardia and a tendency to hemorrhages from the lungs.

When intelligently used, creosote is one of the best drugs we have for the relief of the symptoms which are often difficult to relieve otherwise in intractable cases of tuberculosis.

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#### BAN ON PUBLIC DRINKING CUPS

Kentucky is the latest State to fall into line, and on June 10, the public drinking cup was banished from within her borders, the recently enacted statute prohibiting its use becoming operative on that date.

REPORT OF CASE OF VAGINISMUS IN A WOMAN  
SIXTY-SIX YEARS OF AGE

WALTER B. JENNINGS, Ph.B., M.D.

Vaginismus or Vaginodynia may be defined as an abnormal spasm of the muscles of the pelvic floor, due to some hypersensitiveness of the vaginal outlet. Every gynecologist is familiar with this condition and most practitioners at one time or another have seen such cases. This condition was first described by Dr. J. Marion Sims, and the medical profession is indebted to him for its pathology and the general principles of treatment.

Most writers are agreed that this condition occurs in young, nervous or hysterical women, although Finley does not speak of it at all in his book, nor can the writer find any mention of it by Penrose. All are agreed that there may be no local lesion, or some abnormal condition of the hymen present, sores or ulcers of vulvae or anus may also be present including fissures and fistulae. Coitus or digital vaginal examinations are impossible, or attempts at either (Kelly and Noble) will bring on the spasm. Dudley says that vaginismus is not a disease but a nervous symptom due to, in some cases appreciable, in others to unknown, causes. Carunculae Myrtiformes (hymen remains) in some cases contain large nerve filaments and at times may resemble neuromata. Ashton says: "That a slight prolapse of urethral mucous membrane will cause it. Masturbation, lead poisoning and ovarian or cervical disease may be factors that should not be overlooked." Pryor associated this condition with flexures of the uterus and dysmenorrhea. Dr. J. T. Kelly reports a case due to a dislocated coccyx. Bandler says: "That vaginismus may be acquired as the result of vulvitis infections," and Veits holds that it is rarely observed among the lower classes. Hirst thinks that this condition may develop in women married for years and those who have borne children, although Ashby and others agree that it occurs in recently married women. After this very short sketch of vaginismus, it seems to the writer that the following case is of interest.

## REPORT OF CASE

November 10, 1903, Mrs. F. was first seen as a patient in the office. At that time she was 59 years old and complained of some pain in the left knee as a result of a fall down one flight of stairs, three months previously. Patient's family history was negative. Her first menstruation occurred at the age of twelve years. The second menses at fifteen and a half years, and from that time she was regular,



had no pain, the flow was scant and only lasted two or three days. She never had had any children, no miscarriages, in fact was never pregnant. The menopause occurred naturally at the age of fifty-two years.

The patient's past history was also negative. Her social position was that of a poor woman, the wife of a laborer or watchman.

Physical examination at the time of her first visit was negative as far as heart and lungs were concerned. The pain in knee was due to varicose veins, which were bandaged. The patient was next seen December 30, 1903, when she complained of pain around the urethra and vulva. Vaginal examination was most difficult, but with a small virgin speculum well greased and slowly introduced, the finger first, then the small speculum, the cervix was exposed to view. A small pin point red spot was seen just above the cervix. Otherwise the examination was negative. The apparent pain was out of all proportion to the physical signs. At that time the writer was somewhat at sea about the case, as well as a little anxious. Was this a case of some reflex nervous condition or was it a beginning case of cancer? Silver nitrate solution 2% was applied to orifice of the urethra and internal labia, and simple alkaline diuretic was given. On January 5, 1904, patient returned much improved. At this time tincture iodine (Churchill's) was applied to the external parts which caused great burning, together with sodium salicylate, grains five t.i.d. The burning was said to last for several hours. The next visit was made January 20, 1904. This was the last visit and the patient was not seen again for seven (7) years.

On April 6, 1911, Mrs. F., the same patient, was seen in the office complaining of pain in the lower abdomen, as well as pain around the vaginal orifice. She thought she had passed some blood in her urine, which, naturally enough, frightened her. The abdominal pain was low down on the left side in the region of the splenic flexure of the colon. The abdomen was tympanitic on percussion. The patient was placed on the examining table in the dorsal position, and a vaginal examination was attempted. It was impossible to insert two fingers, but one finger reached the cervix. There was a marked pain before the finger had reached the vagina, there was also a marked contraction of the sphincter ani, levator ani and vaginal muscles. The patient had not had any coitus for seven years on account of pain, but judging from her age, this was not necessarily any great hardship. She stated that she would have a vaginal spasm whenever she tried to insert the douche nozzle.

Physical examination at the time showed the usual atrophic changes in the labia that were common to a woman of her age. The

clitoris, however, was larger than normal. The cervix and vagina were normal. The urethral orifice was slightly reduced, painful to touch and there was a slight thickening together with a prolapse of urethral mucous membrane posteriorly and toward the right side of the urethral canal, but there were no signs or any evidence of caruncle. The patient was treated with a 2 per cent. cocaine solution, applied for two or three minutes, followed by 10 per cent. solution of argyrol. Between the attacks of these muscles, contractions and neuralgic pains in abdomen, she said that she was in perfect health.

#### REMARKS

In the practice of medicine, the hardest, as well as the most difficult, problem that confronts the honest physician is to draw logical conclusion, and far be it for the writer to attempt any such thing from the history of a single case. But, while it is impossible to draw conclusions, one at least might possibly explain in a more or less satisfactory way some of the symptoms, *i. e.*, the reflex abdominal pain. In a recent article by Dr. G. L. Hunner, of John Hopkins, entitled "Chronic Urethritis Caused by Tonsillitis," he says: "When dealing with any obscure abdominal complaint, located below the level of the umbilicus, never overlook an examination of the urethra." (*American Medical Journal*, April 1, 1911.) And again: "Palpation over the urethra caused reflex pains over the bladder region, extending up to the umbilicus, together with a feeling of nausea."

If this patient had been a young married woman, a very simple operation of cutting out of the hymen remains, or dividing some of the muscle fibers would undoubtedly have caused a cure; but an operation in this case at her age (66 years) was out of the question.

To sum up then, the writer can only say that a case of vaginismus in a woman sixty-six years of age, kept under observation for seven years, ten years or more past the menopause; and of a comparatively low social position is an extremely interesting case.

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#### RADIUM AND ITS PRACTICAL USE IN MEDICINE\*

By W. H. B. AIKINS, M.D., C.M., L.R.C.P., London, and  
F. C. HARRISON, B.A., M.D., Toronto

The element Radium was isolated by Professor and Mme. Curie, of Paris, in 1900, while conducting a series of experiments on the radioactivity of the salts of Uranium. In the course of their investi-

\*Read at meeting of Graduate Nurses' Association of Ontario, Hamilton, May 24, 1912.

gations they discovered a substance which was far more radioactive than any known substance, and hence they called it "Radium." To understand the nature and action of this material it is necessary to first obtain a knowledge of what we mean when we speak of radioactivity. A substance is said to be radioactive when it makes the atmosphere surrounding it a conductor of electricity. Many substances have been found to do this; the salts of uranium as was mentioned above, other rare materials such as thorium, actinium, polonium, the waters from many deep wells, crude petroleum, newly-fallen snow, etc., all possess in a greater or less degree the property of radioactivity. It has been found that this property is caused by the giving off of rays of various kinds from the substance. These rays vary considerably one from the other. In the case of radium there are three principal kinds of rays, and they are designated by the Greek letters, alpha, beta and gamma rays. The alpha rays constitute by far the largest portion of the total radiation. They are minute particles of matter, charged with positive electricity and they travel with a speed measuring about a tenth or twentieth part of the velocity of light. They are easily stopped by such a substance as a thin sheet of rubber or metal being held in front of them.

The beta rays are regarded as "electrons" and are negatively charged with electricity. They travel about as fast as light and are not so easily stopped as the alpha rays. Beta rays are of different kinds depending on their power of penetration, hence we get what are called soft B. rays, medium, and hard B. rays.

The gamma rays are few in number compared with the alpha or beta rays, but they have extraordinary powers of penetration. They are considered to be a pulsation of the ether. They can be isolated from the other rays by interposing a screen of lead one centimeter in thickness. This will cut off all but gamma rays.

In addition to its rays and emanation, radium is constantly giving "Emanation." This has been shown to be a gas. It is liberated when radium salts are dissolved in water or heated. The emanation is intensely radioactive, but this radioactivity is soon lost, being half gone in about four days. The radium can keep on producing emanation apparently unceasingly. A body exposed to the emanation, itself becomes radioactive. Therapeutically, as will be shown later, the emanation has been shown to be of decided value in the treatment of many disorders.

In addition to its rays and emanation radium is constantly giving off a certain amount of heat and light, and the most wonderful thing about this substance is that although it is pouring out all its energy, it does so apparently without giving any evidence of the loss, so that

as far as one can tell it might continue to give off this energy *ad infinitum*.

Radium had been discovered some years before it was ever regarded as a therapeutic agent, and it happened really by chance that its therapeutic properties were disclosed. M. Henri Becquerel, of Paris, went to London to lecture before the Royal Society on this wonderful physical and chemical substance. On his journey there and back he carried a small tube containing radium in his waistcoat pocket. About ten days after the journey he noticed an area of erythema on the skin of the abdomen. The inflammation became more intense the succeeding days and finally a crust was formed which in the course of a week or so detached itself and fell off, leaving a smooth scar beneath. The cause of this condition was at first a mystery until it was recalled that the radium disk had been carried over the area of the abdomen on which this reaction had occurred. It was from this that was developed the study of the action of radium on living tissue, both normal and pathological. A supply of radium was entrusted to M. Danlos of the St. Louis Hospital, Paris, and the action of the precious substance on various lesions carefully studied. Following this, the Radium Institute was established in Paris, with Dr. Louis Wickham at its head, and henceforth the therapeutic action of radium was established on a scientific basis.

Since the establishment of the Paris Institute others have been founded in different places, the most recent being that in London, England, which was opened in the Fall of 1911.

As a new agent radium has been used experimentally in many different conditions, in many it must be admitted without fulfilling all the hopes that were first raised; but gradually we have come to understand what we may expect from it, and it has attained a very definite and important place among therapeutic agents.

Naturally the action of radium was first studied on the skin and its various diseases, as here every step in the effect produced could be carefully followed. The alterative effects of the rays were shown to be of great service in many of the chronic skin conditions such as eczema and psoriasis. The thickened skin associated with these conditions was made to disappear, and the irritation greatly relieved, and this after all other known methods had been used without benefit. One of its most useful effects is for the relief of the itching which accompanies chronic lesions, and also for pruritus, which is often found present without apparent cause. Short exposures in many cases relieve the symptoms very quickly.

Radium rays are parasiticide and hence we find benefit from their use in such stubborn conditions as ringworm of the scalp, beard, etc.

In skin lesions of greater severity we find marked benefit from its use, such as lupus erythematosus and lupus vulgaris, the nodules of the latter being made to cicatrize and heal.

That large group of disfiguring skin lesions caused by permanent dilatation of the blood vessels, usually congenital, and known as naevi or angiomas, are very frequently most amenable to the action of radium rays, and the cosmetic results produced are very gratifying to the patient and physician alike. In the angiomatous tumors where the vessels are often so dilated that distinct pulsation is observed, we obtain the best results. The flat naevi, or port wine stains are much slower in showing results and it is necessary to proceed very cautiously in treating them. The way in which radium rays act in these conditions is by causing proliferation of the endothelial cells and gradually producing occlusion of the vessels.

The greatest interest has naturally been aroused by the use of radium in the treatment of malignant diseases. At first many extravagant claims were made which have since had to be modified, nevertheless enough work has been done and results obtained to prove that it has a great value in the treatment of these conditions.

In the treatment of malignant disease of the skin radium may be said to be almost a specific. The most common form of cancer of the skin, the rodent ulcer so called, is most amenable to treatment and readily heals, leaving a smooth cosmetic cicatrix. The fungating epitheliomata also respond in the same manner. It may be asked, "What of recurrence in these conditions?" To that one can only reply that there are numerous cases which were treated when radium first was used therapeutically, which have remained healed to the present time.

If recurrence should take place the condition would be quite amenable to further radium application. In sarcoma of the skin favorable results are shown, by the formation of fibrous tissue to replace the sarcomatous tissue, thus producing a firm, fibrous nodule in place of the malignant growth.

Epithelioma of the lip is amenable to radium treatment when it has not extended so far as to involve the mucous membrane inside the mouth, or when no metastases have occurred in the glands draining the area. If such should be the case surgical intervention is called for, radium being used afterward as a prophylactic against recurrence. This brings us to a most important side of the subject of radiumtherapy, that is, its use in association with operative surgery. In such conditions as cancer of the breast, for instance, operative procedures should be carried out to the fullest extent, provided the



general condition of the patient is such as to withstand the shock. Before operation, an exposure of the field to the radium rays lessens the malignancy, and by repeating this exposure as soon as possible after the operation—even before the stitches have been removed—the chances of recurrence are greatly diminished. We recall several cases of this type where we firmly believe recurrence has been avoided by this prophylactic treatment.

In gynecological work, radium has a large field of usefulness. Foremost stands its application in inoperable cancer of the uterus. Here it is of the greatest value in certain cases in allaying pain, lessening discharge and stopping hemorrhage. Certain observers have recorded cases at first regarded as inoperable where so great improvement occurred after the use of radium that the conditions became operable. Certainly operation should be done in every instance where feasible, but as a measure to give the very best chance in inoperable cases, radium is worthy of the most serious consideration in every instance. Several cases where operation was refused by leading surgeons and very unfavorable prognoses given, have received radium treatments, and are to-day not only living but enjoying very fair and comfortable lives.

French observers have reported uterine fibroids treated in this way with considerable success, also in the treatment of chronic inflammatory disorders of the uterus and its appendages when favorable results have been obtained from its use.

It was mentioned above that in sarcoma of the skin radium has a powerful action for good. The same applies to sarcomata of other parts, but here again surgical procedures are always to be advised when feasible, the radium being used as in the case of carcinomata, as a prevention against recurrence.

Mention was earlier made of the radium emanation, which is a gas continually being given off by radioactive substances. This emanation is present in certain mineral waters and can also be prepared artificially. It is absorbed into the body either through the lungs or alimentary tract and has been shown to produce certain effects which render it of therapeutic value. These are chiefly manifested in the relief of pains and inflammation in gouty and rheumatic conditions, which is brought about by the solvent action of the emanation on uric acid deposits, and also a lowering in the blood pressure. This latter factor makes it of considerable value in the treatment of arteriosclerosis. The result is that we find chiefly in Germany that considerable use is being made of the emanation employed in the form of baths, waters to drink, or inhalation of the gas itself. As local applications in chronic rheumatism, neuralgias, etc., radio-

active earths are employed in the form of poultices to the affected parts.

In presenting thus briefly some of the uses of radium as a therapeutic agent, we would distinctly dissociate ourselves from others who may claim that radium is a panacea for either malignant or any other diseases. Like all other remedies there are limitations to its usefulness, and we would strongly deprecate its use by persons not thoroughly familiar with the technic to be employed. When not properly used, radium may do harm. No one who has not had a considerable experience and sufficient radium at his disposal should undertake to make use of it.

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## THE NEW ASCETICISM

BY DR. RALCY HUSTED BELL, New York

This is an age of *isms*. There is nothing much new about them, to be sure, except the nomenclature. But we must have something to talk about. We change relationship to an old subject—strike a new attitude toward it—and then attempt to re-orient ourselves while talking about it. This is the genesis of an *ism*. Really, it is little more than the clothing of an ancient theme in new garments. The world beholds the fresh apparel and assumes the figure to be as new as the clothes. Shortly everybody is discussing the new *thisism*, or *that*. And yet it is this very churning of the psychic world that butters the bread of many and saves others from being bored to death. Moreover, it is the way of progress.

The New Asceticism is no exception. The dirty rags of the old are cast aside. Soap and water are freely applied. New garments are put on. He who runs may read the change. But this is not all. The body is not mortified for the good of the soul, nor is it glorified at the expense of the soul. The body is the means to the end of a more perfect soul. This calls for a modification of regimen. The cult of muscle becomes subordinate to wisdom. The body is developed, maintained and cultured to a degree which permits the greatest efficiency of mind. Physical culture carried beyond this is followed by harmful reaction. The New Asceticism is concerned with the problem therefore of keeping the physical **within** bounds—of seeing to it that physical development shall not embarrass the mental; that bodily culture shall not choke the spiritual, or psychic. This brings us to practical methods.

## THE LIMITS OF SANE PHYSICAL EXERCISE

The investigation of athletics in our Naval Academy by the Bureau of Medicine and Surgery is an eye-opener. It appears from a report of the bureau that trained athletes, while immune against the toxins of fatigue, may be even more susceptible than others to infection from without. This is what one would naturally suspect. Overtrained athletes, it has been found, are especially liable to tuberculosis, mental and nervous diseases, acute dilatation of the heart, valvular diseases, morbid conditions of the kidneys, heart and blood vessels,—appendicitis, hernia, and so forth. Thus it has been determined that physical training merely for the purpose of producing a fine animal subverts its purpose. The only kind of physical development which succeeds in making a fine animal is the kind that makes a better or more efficient mind. On this basis is founded the New Asceticism.

Let us see. Conditions of living imposed by civilization are relegating more and more of the voluntary muscles to inactivity and consequent atrophy. Invention supplies us with devices which supersede some of these muscles. Many others, because they are not needed, are seldom called into action. As there is no likelihood of man going back to the trees and other primitive conditions of life there is no reason for preserving useless muscles. It is well to allow them to become rudimentary, since to keep them in tone is an expense to the vitality of the body and to the contents of the pocket-book. But as to the involuntary muscles, the case is reversed. The heart will always retain its primeval importance. Now if we develop more or less useless muscles at the expense of the heart we are committing a folly that the Greeks avoided.

Another worse than folly of physical exercise is the rapid enlargement of the thorax. The unthinking athletic director mistakes the increase of physical capacity of the chest for increase of vital capacity. Between the two there is a vast difference. The vital capacity of the thorax is merely a difference between its minimum and maximum dimensions. Its absolute capacity is another thing. The tendency of age is to enlarge the relative capacity of the thoracic cavity, and at the same time to diminish its vital capacity, with the result that as its elasticity diminishes the stagnation of blood and air increases in the lungs to the embarrassment of the heart. Athletic training of the kind that unduly enlarges merely the physical capacity of the chest accomplishes in a short time an act of senility which otherwise would naturally occur only after many years. Many a young man in the early twenties has a chest of a man of fifty or more.

The competitive system of athletics, carried as it is to ridiculous extremes, is always harmful to a large percentage of the competitors. Men vary in physical as in mental capability. The same standard of requirement applied to all regardless of individual capability is no longer considered scientific either in mental or physical culture.

A great many persons have been misled by the half-knowledge of a half-truth. It is true that change of occupation is a useful form of rest. But it is a truth that requires some sense to understand, especially in its application to athletics during school days. No physiologist of any attainment will hold that physical and mental exercise are wholly independent of each other. Everybody knows that when one is tired of brain work, physical exercise is wholesome; but everybody does not seem to know the reason why. Reduced to the baldest facts, it is this: Certain sets of small, tired muscles, as of the eye, for instance, are released from strain and put at rest, while other groups of large, fresh muscles are brought into play. In this case, change of occupation is comparative rest. Besides, the hardest kind of brain work is attended with only a small trace of fatigue-toxins—far too slight to affect the motor apparatus generally of the body. But after hard physical exercise brain work is difficult because the organ is burdened with fatigue-toxins in the blood—toxins which have been washed out of a great number of muscles, many of them large. Professor Angelo Mosso, of Turin, shows this admirably in his work on *Fatigue*. He makes it perfectly clear that the brain is clogged, as it were, with these fatigue-toxins, gathered up by the blood and lymph from all parts of the body. These poisons are far from fanciful—they are very real, indeed. Their chemical action is a distinct detriment to the free functioning of the brain which requires pure blood—not poisoned blood loaded with effete matter from all parts of the body. It is well known that overwork of the legs tires the arms. The same rule applies to the brain. If fatigue were merely exhaustion of an over-worked muscle the result would be different. But the chemical effect of fatigue-toxins conveyed by the circulation to muscles which have not worked at all, tires them in proportion to the amount of chemical poison received. Thus a thoroughly rested animal injected with the blood of a thoroughly tired animal shows the effects of fatigue. I have no doubt that the eating of the flesh of animals which were killed while extremely fatigued is harmful. I have noticed in Spain that the poor who eat of the bulls killed in the ring show unfavorable symptoms within an hour after eating.

The principal gain of athletic training is in the acquiring of immunity through exercise against fatigue-toxins. The principle is

much the same as that which is involved in acquiring immunity against drugs, and poisons produced by microbes. For this reason trainers interdict the use of tobacco and alcohol, which retard the action of the ferments in the physiological chemistry forming the fatigue-toxins. When the whole body is tired, the whole body needs rest, and no change of occupation can take its place. Physical fatigue even impairs the function of the digestive organs.

So we see that the fine animal is not produced by excessive athletic training, since in perfecting and developing the voluntary muscles many of the involuntary, especially the heart, are impaired. The New Asceticism would not only remedy this folly by sane exercise, but it would make a fine mind while developing a fine body.

Sane exercise is moderate exercise—exercise with brains in it—exercise suitable to the person's age and needs. And the best of all athletic training is that acquired through play or pleasant work. Pleasurable exercise is always best. That which we do with a definite aim and purposeful delight is the most helpful to the body and best for the soul. I do not mean to encourage young men to be milk-sops or middle-aged men to be fat-heads or older men to be grandmas. That is not the idea. But I do wish to warn the young against silly and excessive strains, and the middle-aged and older against forms of exercise which are unsuitable to their particular persons. True manliness does not require savage stunts in any line of excess.

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### LABORATORY EXPERIMENTS OR CLINICAL EXPERIENCE AS A METHOD OF DETERMINING THE THERAPEUTIC VALUE OF A REMEDY\*

By JOHN W. WAINWRIGHT, M.D., New York

I have been requested to present to you a brief paper on the above subject, and, while it is rather a difficult one to discuss, I shall hope to bring out some points, at least, that may prove illuminative and interesting.

First, I will state, in order to avoid a misunderstanding, that in so far as this discussion is concerned, I recognize three kinds of laboratories, connected with the investigation of a remedial agent: the analytical, or chemical; the physiological (experimental), and the pathological or clinical; the analytical being concerned only in determining the constitution of the agent; the physiological with animal experimentation to determine its action on healthy animals of

\*Presented to American Medical Editors' Association, Atlantic City, N. J., June, 1912.



various species; the pathological, the action on diseased tissues and functions. I shall discuss them in the order named.

The analytical or chemical investigation of an agent will determine its composition only. It is true that our present knowledge of chemistry enables us to determine somewhat the action of an agent from its constitution, as certain groupings of elements indicate a possible physiological action, but this knowledge is often misleading. For instance,  $\text{CII}_4\text{N}_2\text{O}$  is in one grouping ammonium cyanate, a violent poison, while in another we have urea, a product of metabolism found in all animal organisms.

Constitution alone determines the physiological and therapeutic actions of chemicals and this law is of vital importance to the therapist because of the changed action resulting from chemical combinations as the result of contact with the gastric, intestinal and tissue fluids. One may determine by analysis that  $\text{C}_6\text{H}_{10}\text{O}_5$  may be either glycogen or dextrin, but he would never be able to attribute therapeutic properties to either without laboratory experiment or clinical observation. The intestinal juices, including the bile and the pancreatic fluids, will make soluble otherwise insoluble or inert acids; will saponify many agents rendering them capable of absorption and thus active. Other agents are precipitated in the alkaline intestinal secretions, thus rendering them quite incapable of absorption. These facts remained unknown for centuries, although chemical analysis was practised.

Physiological experimentation and the revelations of biological and pathological studies have released the practice of medicine from the empiricism of former times to a scientific application of remedial agents of the present. Experiments have determined that the physiological actions of the elements correspond to their motion and vibration, the molecule upon the preponderance of a single component; Carbon has a paralyzing, hydrogen an exciting and oxygen an indifferent action. The more carbon and the less hydrogen in a compound, the greater its paralyzing effect and vice versa. The hydrocarbons are therefore paralyzing because of the over-powering influence of the carbon content. In the hydroxyl groups, the hydrogen has an exciting action because of the indifferent oxygen. All cocaine in a chemical sense cause the same pathological changes in the mouse's liver, but the anesthetic effect is limited to the benzoyl group, which is anesthesiophoric, while the methyl group is only anesthesiogenic and herein is explained the synthesis of new remedies in the body.

Constitution and molecular configuration are of vital importance to the therapist, for the combining of medicinal products with

constituents of the gastric, intestinal and tissue fluids and the contents as well as of the various glands influences the success of treatment. The selective action of the cells for certain chemicals and the resulting compounds determine the benefit of treatment, as often altogether different products are formed in the animal than are sought for, the new having at times an action unlooked for and one far from desirable. Thus, benzol is changed to phenol; propylbenzol is oxidized into benzoic acid.

Then we have tissue selection which can only be determined by physiological experiment. Thus chloroform accumulates in the red blood corpuscles, due to its mixing with lecithin. Acids, bases, alcohols and phenols form combinations with protoplasmic groups. Substances with tertiary nitrogen which possess little or no poisonous action in themselves, may be transformed in the tissue into powerfully poisonous substances by reduction. The spinal cord possesses a marked selective force for strychnia. Certain drugs offer more or less resistance and are thus to a greater or lesser extent inert. Emil Fischer declares that "a definite configuration is necessary for a sugar molecule in order to influence the action of particular kinds of yeast, and that the fermenting portion of the yeast molecule is related to the fermented sugar molecule, as is a key to the lock." The end group which seems to anchor the substances, may or may not exert action. The basic substance may be only a vehicle for the active atoms, which occupy such a position as will enable them to unite chemically with the definite group of atoms in the tissues. There are two groups in every active substance, the lateral chain group which unites with groups of atoms in the tissues, thus anchoring the molecule, and the group which produces the physiological action. We have chemicals consisting of the same character and number of atoms, but because of different groupings, physically, physiologically and pathologically dissimilar. For instance, pyrocatechin, resorcin and hydrochinone are composed each of  $C_6H_4(CH)_2$ . Pyrocatechin, the ortho product, occurs in flat plates readily soluble in water, alcohol and ether; if made alkaline it absorbs oxygen and turns green; it has weak acid properties, and is used as an antiperiodic. The fatal dose per kilo of body weight is 0.06 gram. (Dose for adult 1 to 2 grains). Resorcin, the meta product, is a colorless crystal melting at  $100^\circ C$ , boiling at  $276^\circ C$ , very soluble in water, alcohol and ether, with a sweetish taste. It is a powerful antiseptic and anti-fermentative. Dose 2 to 10 grains. Hydrochinone, which is the para product, is but moderately soluble in water, more readily so in alcohol and ether, occurs in six-sided

prisms, fuses at  $189^{\circ}$  C. It is antipyretic and antidiarrheal, and is used in doses of 5 to 8 grains.

The Cresols have the formula  $\text{CH}_3\text{C}_6\text{H}_4\text{OH}$ . Orthocresol is a crystalline solid and exerts a paralyzing effect upon the heart. Metacresol is a liquid and but a faint heart poison. Paracresol is a solid and also a cardiac poison. Why this great difference because of the grouping of identical atoms has not been explained.

We come now to the pathological action of chemical agents. While physiological experiments will indicate the use of an agent in healthy tissue, altered function or tissue change may influence the action rendering it by chemical change inert or highly toxic. Experiments upon healthy animals will not determine their action on diseased tissue or in the presence of altered function; besides, the lower animals which are used for physiological experimentation do not always react to remedial agents as does man. Animal experiment, therefore, in order to determine the specific effect of a remedy in the presence of disease, must be made upon such animals as can be and are infected with the particular disease for which the agent is thought to be a remedy.

Thus, briefly, I have tried to show that the determining of the action of a chemical, therapeutic and otherwise, is a complicated procedure. The first point to disclose is the chemistry or structural formula, be it a definite product or compound. This is but a small part of the investigation if of a supposedly medicinal product. The next step will be physiological experimentation and this is the second in importance, and is tedious and often long drawn out, requiring close observation as to the manifestations of symptoms which must be minutely and accurately recorded. In all cases it is necessary that an autopsy be made and the effect of the agent administered upon the organs and tissues be noted. This work requires accurate histological examinations, microscopical and otherwise.

Finally, the preceding examinations warranting, we next undertake a pathological study, or clinical observation when the agent is given to the human subject; and this is the most trying, prolonged and exacting, as it involves the relief of suffering, cure of disease and even danger to life. Months and often years are required for this part of the work, which can be intrusted only to the most skilled clinical observers.

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## EDITORIALS

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### THE OCTOBER ISSUE

Largely because the July issue of THE AMERICAN PRACTITIONER, devoted to Tuberculosis, met with so favorable a reception, as evidenced in numerous personal letters received by the editor, commending not only that number but former ones, he wishes to announce to his subscribers and other readers that he will devote the October issue to Original Articles, Editorials, Digest of Current Literature, etc., all specially prepared for that number, to various phases of Public Health. The original contributions will be from noted authorities and will include a wide range of subjects, measurably covering the all important information for ways and means to preserve the public health. Subscriptions date from receipt.

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### SOME FACTS CONCERNING NATIONAL MEDICAL INSURANCE IN GREAT BRITAIN

The National Insurance Bill of Great Britain has become law recently, but owing to the opposition of the medical profession, is unworkable. In certain medical and lay journals of this country this action of the medical profession has been characterized as based solely

on sordid motives, and the profession has been stigmatized as hindering a movement for the good of the race, urged thereto chiefly by love of lucre. A few facts, therefore, bearing on the question may be of interest to our readers. The benefits of the Insurance Act from a medical standpoint are: 1. Medical treatment with drugs, etc., throughout life. 2. Pay during incapacity from sickness. 3. A maternity allowance. 4. Provision for the treatment of tuberculosis mainly by means of sanatoriums. The pay offered the medical men of Great Britain for services, under the Act is \$1 a year for each person, with 50 cents for drugs. It will be observed that the pay is paltry, but the loss of private practice certain to ensue by the extension of medical benefits from six and one-half millions to fourteen and three-quarter millions, is a more serious matter by far. Moreover, the present lodge practice in Great Britain is confined to selected lives and healthy persons, whereas under the Act it will comprise men and women and children of every description. The money loss then to the profession would be alone such as to warrant the outcry raised. But it is not only the inadequate pay that the medical man will receive to which he objects, he resents strongly that under the scheme he will be placed in the hands of societies, thus losing his independence and self-respect. His experience in the past with contract practice has been of a nature to make him view its proposed extension with dread. The following were the demands made by the Committee of the British Medical Association to the British Chancellor of the Exchequer. 1. An income limit of \$10 a week, that is, any one having an income of more than \$10 a week should not be eligible for the medical benefits under the Act. 2. Free choice of doctor by patient. 3. Medical and maternity benefits to be administered by Insurance Committees and not by Societies. 4. Remuneration to be at the rate of \$2.10 a head a year, extras and medicines not included. The Chancellor of the Exchequer refused to accede to these demands and the bill was made law and the medical profession by refusing to administer the medical benefits has caused a deadlock. There is no space here to comment on the effect of the passage of the bill on the hospitals, nor on the proposed treatment of pulmonary tuberculosis, which is open to severe criticism. From the above brief resumé it will be gathered that the medical profession of Great Britain is fight-



ing for its rights, and its very existence as an independent and honorable calling. It is claimed by the supporters of the bill that the medical men of Great Britain are wilfully standing in the way of the physical regeneration and uplifting of the race. On the other hand, the medical men state that their action is calculated to be beneficial to the community at large, for that if they took service at the inadequate pay offered, they would be wholly unable to treat their patients properly, and thus they themselves would suffer both in pocket and self-respect and the public would receive less effective treatment than under existing conditions. Contract practice in this country is not regarded with favor by the profession and accordingly physicians throughout America will be inclined rather to sympathize with the efforts of their brothers in Great Britain to prevent its wholesale extension than to censure them for their attitude.

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### CRITICISMS OF MEDICAL COLLEGES

The Carnegie Reports on Medical Colleges and Medical Education have been in the nature of a boomerang, which now returns showing the selfishness of the report and the weakness of the effort. The whole scheme was illconceived and carried out with a spirit and narrowness that compelled failure.

The medical schools needed a stirring up, but destructive criticisms are the cheapest kind of efforts to bring about reform. Any one can go up and down the land find error, mistakes and faults, but unless he can suggest a way out of them and a remedy for the evil he exposes, it is destruction rather than construction and therefore useless.

The demand for perfect equipment of laboratory and hospital appliances in medical colleges, is recognized by every school. The attempts to raise the standard of preparation is also recognized, and every school is working to that end. One of the greatest wants has been entirely ignored in these reports; that is efficient, competent teachers, adapted for the work. It has been assumed that all the larger colleges have provided for this want. In reality, however, this is one of the greatest weaknesses of the medical schools of today.

Many of the largest and most heavily endowed schools have, in

the faculty learned scholars, men with reputation and ability, with little or no faculty of imparting their knowledge to others; men whose work is perfunctory, who impress their intense conservatism and cold librarian masses of information in the most confusing way; men who are salaried, who are supposed to give all their time to teaching in some particular department, who are impractical and lack every principle of pedagogic inspiration and science.

Laboratories and hospital appliances, however elaborate, cannot make up for this deficiency. The students of such schools are unlearned and go out with the most confused notions of facts and principles. On the other hand, small schools with limited facilities and enthusiastic, clear brained teachers do more to make strong students than the most complete hospital and laboratories presided over by dull mechanical men. The teachers may be exact, careful and learned, but have little or no genius or spirit to make the facts accessible for absorption, or the creation of a student in the future medical man.

A professional teacher on a salary without any active practice is of necessity lacking in his knowledge of the facts and his ability to discriminate those that are most essential. The text book gives all the facts and occasionally a graphic author puts more prominence on one than on the other, but the absence of personality fails to convey to the student the reality which should become a part of his mental training.

The text book gives exhaustive discussions and presentations of a great variety of facts. Unless the student is trained to pick out and discriminate these facts and apply them to the conditions that he must meet every day, there will be failure. Teaching is an art, not a science, and it is very evident that many of the so-called leading colleges of the country are loaded down with impractical, inefficient and incompetent teachers, incompetent to impart the knowledge which they possess in the best way. They are no doubt learned and fully know the subject, but are unable to pass it on to students and to rouse a student spirit of inquiry, discernment and capacity to apply the facts.

If the Carnegie investigation had dared to extend their reports to the efficiency of the faculties and had skill enough to discern the

pedantic, learned, heavy and egotistical teachers, who in both laboratory and at the bedside in hospitals, are incompetent to rouse up and create a spirit of inquiry in the student, another field of reform would have been opened.

The assumption that endowments and university connections with great masses of laboratory appliances and hospitals full of patients will make students ideal medical men for the future, is a most stupid error. The experience of every great university contradicts this. Medicine is not an exact science to be learned as is the formula of astronomy and surveying. It is a fine art, and students must first be artists to know what they want and to be taught the things that they will be called on to put in practice. It is criminal to cumber them with the theories and formulas that must be unlearned in the future.

The practice of medicine is the utilization of facts to the conditions of practical life, and medical colleges of the highest type should have teachers who will direct and point out the facts that were needed, and make the student understand them. This is individual work and college buildings and college appliances are only helps for this purpose.

The Carnegie Reports on Medical Colleges is a tremendous waste of energy and a failure in the large sense. It calls attention to what was known before, but offers no solution or remedy, hence is unfortunate and another illustration of sending incompetent men to do a work without breadth of comprehension or knowledge of the subject.

T. D. C.

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### GASTRIC DIGESTION

It has been stoutly maintained for a period covering many years, and especially perhaps, during the past few years, that the digestive apparatus is dependent upon the presence of bacteria in the intestinal tract for the performance of complete functional activity. An examination of the intestines of animals has always shown that these contain an immense number of microorganisms and this fact has brought about the view that they play an important part in the process of digestion. Some investigators, indeed, have claimed that their presence is indispensable. This latter opinion has seemed from

time to time to have received corroboration from many sources and the matter was beginning to be regarded as practically decided in this direction. Scientific men have been wont to assume recently that bacteria in the intestinal tract were essential to thorough digestion. Quite recently, however, this assumption has been seriously challenged and several experiments have been undertaken with the object of definitely elucidating the matter. According to the *British Medical Journal*, April 20th, all doubts on this point may be virtually set at rest by a recent communication to the Academie des Sciences, February 12, by Dr. M. Cohendry. He is said to have succeeded in rearing chickens under absolutely sterile conditions, and reared in this manner the birds grew and thrived as well as those brought up in the ordinary way. Cohendry devised a special incubator in which eggs were hatched and chickens reared in bacteria free air, fed on bacteria free water and food. When the chickens were too big for their cage they were subjected to bacteriological examination, and it was found that the digestive tract, the blood and the external surface of the body were perfectly sterile. Some of the chickens were fed on ordinary food when in the course of a few hours their intestines were found to contain the usual intestinal flora and no ill-effects followed the change. Cohendry concludes as a result of the series of experiments that sterile chickens are not hypersensitive to intestinal bacteria, but that on the other hand, bacteria, nonpathogenic in ordinary circumstances, may exercise a pathogenic effect on them. Professor Roux endorses these experiments and conclusions which set the seal of authority on them. It would appear that the influence of intestinal bacteria has been greatly overestimated, although, perhaps, it would be premature to draw any inferences in connection with human intestinal bacteria. To draw an analogy between the intestines of a chicken and a man might appear far fetched.

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#### MEDICAL TREATMENT OF CHOLELITHIASIS

Operations for gall stones are very common nowadays. In fact, operative interference appears to be considered almost the routine form of treatment in, perhaps, a majority of cases of this condition. There are physicians who do not hold with the so free a use of the

knife as is practised at the present time, and some are not chary of giving their views on the matter.

Dr. Paul Mayer, the well known Carlsbad physician, writes in the *Lancet*, June 1, 1912, to this effect. He is of the opinion that:

1. Acute cholecystitis should be treated medically; only the most severe form, cholecystitis acutissima, belongs to the surgeon.
2. Chronic relapsing cholecystitis should be treated by operation only when all the suitably employed agencies of medical therapy have failed.
3. Operation should be performed in chronic obstruction of the ductus choledochous if two or three months of medical treatment have been without effect. In cases with prolonged remittent fever, rigors, and bad general condition the operation is unquestionably indicated.
4. Hydrops cystidis felleae demands operation only if there are persistent and very severe irritative phenomena.
5. Empyema of the gall-bladder and all suppurating processes in the region of the gall-bladder and in the liver should be operated upon.
6. Adhesions about the gall-bladder should be treated medically so long as the inconvenience produced is not marked. In the most severe cases operation is required.
7. Acute and chronic pancreatitis belongs to the surgeon.

According to Mayer the majority of patients with gall-stones should be treated medically. As stagnation of bile is the fundamental condition for the production of concretions, treatment must be guided by this fact. But since the formation of stones is always a secondary phenomenon, the rational treatment consists not in the expulsion of the stones, but in the prevention of the formation of new stones, by combating stasis and inflammation, and in bringing stones already present to rest, thus inducing a latency of the disease. Mayer's treatment follows on these lines, expelling the stagnant, thickened bile by rendering it more liquid. This is effected by somewhat copious draughts of hot water and by the injection into the intestines of large quantities of Carlsbad water, the patients retaining these as long as possible up to an hour. As for diet, Mayer states that the ordering of frequent but small meals forms the first principle in the dietetic treatment of patients with gall stones. This diet should be divided into at least five meals daily.

The Carlsbad waters act beneficially in the treatment of chole-



lithiasis in that they dilute the bile to a greater extent than ordinary water and therefore promote the outflow of bile in an effective manner. They also favorably influence the circulatory conditions in the liver and alimentary canal and the catarrhal processes in the intestine, liver and gall bladder. In short, Mayer is of the opinion that Carlsbad waters tend to best fulfil the postulates he has enunciated as the object of medical treatment, the chief of which is the rendering of the stagnant thickened bile more liquid.

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#### THE DANGERS OF DUST

There is no question in sanitation and prophylaxis of greater importance than that of the danger of dust, and while we believe that all physicians and intelligent laymen are aware of the necessity of excluding it from dwellings, still, because of its being in evidence everywhere, its dangers are not always sufficiently dwelt upon either in the homes of the physician or his patients. A few words of caution therefore, not because we forget, but because we neglect our privilege to direct in all matters affecting public or private health. There are those of us who will recognize the dangers of disorderly, unhygienic places for public gatherings and protest in strenuous terms, who will fail to note similar conditions in our own homes or the houses of our patients; those who would start something if a street sweeper undertook to raise a cloud of dust by sweeping the street in front of his own home, without first sprinkling, but who would fail to rebuke a servant in his own home, who used a broom or duster. It is obvious to all medical men that dust is a menace to health; that it is as much or more dangerous than flies or mosquitoes as it contains pathogenic microorganisms of numerous diseases, including tuberculosis, typhoid, pneumonia, poliomyelitis, diphtheria, tetanus; the streptococcus, staphylococcus and filth of all kinds, including the dejecta of horses, dogs, cats and men; that those of us who keep pet dogs, cats, etc., have our carpets, rugs, clothing contaminated with disease-producing germs, which they bring into the house from the street or organisms from their own bodies. We do not entirely forget that the organisms which produce fermentation and putrefaction in our store rooms; that infects the baby's milk, our food, come from dust. We will dust our coat or brush our hat in the living rooms if not the nursery of our homes, or allow our patients to do it without rebuking them and wonder why members of our own or patients' family contract infectious diseases as "they have not been exposed."

Verily the price of health is eternal vigilance.

## GENIUS IN SCIENTIFIC MEN

Sir William Ramsey notes how Professor Wilhelm Ostwald (now a great authority on philosophical subjects, as well as in his one specialty of physical chemistry) came to write his book "*Grosse Männer*" (Great Men). A Japanese student had asked him how he knew which of his students were going to do him credit in the future. His first answer was that he didn't know—that he didn't see the practical bearing of the question. The Japanese rejoined: "It is a most practical question; for our Government, and many others, are spending large sums in helping lads to get a thoroughly good education; it is a sort of State investment; for it is expected that those who are given such advantages shall be useful to their country, and the State would like to be sure that it is making a good investment when it educates a youth free of charge." On thinking this over Ostwald became convinced that the students who had passed through his hands, and who had subsequently made a mark in the scientific world, were those who were difficult to induce to follow definite courses of instruction; and in this Ramsey agrees with Ostwald. We are apt to think that future Cæsars, Shaksperes, Newtons and Beethovens must be left to chance; that what is in them "will out"; but possibly we do not give a chance to boys of genius who might develop, if rightly nurtured. Genius, like rare hot house plants, is of tender growth; it is apt to wither, unless tended under favorable conditions.

Professor Poincare, the brilliant French mathematician, has given a most interesting description of how his discoveries have been made. Power of mathematical thought is, though not very rare, confined to very few men in its highest and most intricate branches. Suppose a certain problem presenting itself as interesting, and as requiring a solution, a great deal of "spade work" has then to be done. One must try one plan after another for months, meeting apparently with no success. Then in an instant, while the mind is dealing with quite other things (as when talking casually to a friend or while stepping into an omnibus) the solution flashes upon the mind. Unquestionably while we lie unconscious the brain goes on doing its work just as do the lungs, the heart and the digestive organs. But the brain will not do anything that has not already been the subject of conscious action; the mental food must be given before it can be digested. In a poet or a musician the result of such "unconscious thought" is called inspiration. We are loath to believe that it comes from "ourselves"; it appears to come from outside; but it is the essential feature of what we term "genius."

Ramsey's experience is that, as a rule, it is not the lads who come

from science schools who are most promising. A characteristic of men of genius which may seem to distinguish them at an early age appears to be that they are extreme in their temperaments. While most men are neither very sanguine nor very phlegmatic, men of genius are characterized by an excess of one or the other of these temperaments. Ramsey propounds four propositions as definite and final: First, that the faculty of originality, or inventiveness, is pretty widely spread, although, of course, like all other qualities, it is rare in its highest forms; second, that like all other faculties, it improves by cultivation; third, that the inventive faculty, if trained by application to one set of problems, serves equally when directed to others of a similar character; and, fourth, that it is impossible to decide what the result of a scientific discovery may be.

Ramsey concludes that it is rare to find in the same mind the aptitude for making discoveries and coincidently the commercial and practical instinct which applies them to benefit the human race, and to fill the pockets of the discoverer. A different kind of genius is required for the last, though in its way it does not lack importance. The man who is able to apply and utilize discoveries for the benefit of human kind certainly deserves to be called "great," as well as the man to whose efforts and genius the discoveries are due.

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#### COLERIDGE AND ANIMAL MAGNETISM

This great poet and philosopher was greatly interested in animal magnetism and ocular fascination, as is evidenced in some of his poems. The "glittering eye" of the Ancient Mariner, has been noted as the counterpart of an effect sometimes visible in Coleridge himself, whose eye excited wide comment among those he met and knew. "It has more of the poet's eye in a fine frenzy rolling than I have ever witnessed;" "large projecting eye-brows, and his eyes rolling beneath them like a sea with darkened luster;" his eyes were as wonderful as they were represented to be—light, gray, extremely prominent and actually glittering; such were comments of Coleridge's contemporaries. He wrote much on animal magnetism: how much actual faith he had in the theories concerning this vaguest of subjects it would indeed be difficult to determine. "My mind is in a state of philosophical doubt as to animal magnetism. A steady gaze will make many persons of fair complexion blush deeply. Account for that." He was fond of quoting Bacon:

"Some have been so curious as to note that the times when the stroke or percussion of an envious eye doth most hurt, are when the party envied is beheld in glory or triumph. For that sets an

edge upon envy; and, besides, at such time, the spirits of the person envied do come forth most into the outward parts, and meet the blow. But leaving these curiosities—though not unworthy to be thought on in fit place.” Among many passages from Coleridge’s poems of the supernatural are the following: The bright flashing or glittering eye. The dull eye. The mild look. The evil look. The eye and the curse (the mother’s, brother’s, widow’s or orphan’s curse and the dead man’s curse). Enforced looking, refusal to look, and the effort to look away. The bright and flashing object. The sun personified and represented as having a face or an eye, with the power of fascination. The fascination of the man, which is personified, and represented as a face or eye. Fascination of animals.

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#### UNDERGROUND TRAVELING IN LONDON

Underground traveling in London is objected to by many because the air is impure and often stifling. What promises to be an evolution in this particular is a plan recently announced by the Central London Railway Company, by which a system of ventilation, capable of pumping daily 80,000,000 cubic feet of ozonized air into its tube stations and tunnels, will be installed. One plant is already in operation; and it is hoped similar ones will soon be completed at every station along the line. The plant at each station should pump 50,000 cubic feet of air an hour into the station, or at the rate of 900 cubic feet a person an hour. The ordinary allowance in buildings is about 300 cubic feet of fresh air a person. The air is drawn from outside through a filter screen, which removes dust, dirt and impure gases. A part of the air is then highly ozonized by being passed over highly electrified plates, the proportion of ozone to the whole being one part in 10,000,000. The air is driven by fans to the level of the station; and two-thirds of it is distributed over the platform by ducts, with outlets at a height of seven feet above the platform. The remainder is driven into the tunnel. The size of the pumping plant is such that it can be installed in a chamber 10 x 8 x 4 feet; and there are two miles of ductwork.

We have, by the way, some subways this side the pond, which seem—well, just a trifle stuffy.

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#### RACE COLORS

What makes the Caucasian white, the negro black and the Indian red? One explanation is that the black races are so from continuous exposure to sunlight; but this theory does not seem to hold

good throughout. An interesting thesis is that of Professor A. Bergfeld, of Germany, who believes the matter is entirely one of feeding. In the animal and insect world color is often determined by food; and Dr. Bergfeld argues that by chemical process the same results are shown in the different human races. He believes the original human was black, as his chief diet must have been vegetarian. Fruit and vegetables contain manganates, which ally themselves with iron, making a dark brown combination. Negroes who add meat and milk to their vegetable fare are never so dark as those who only eat vegetables. Indians are red because for generations they have absorbed hemoglobin. Mongols are yellow because they descend from dark fruit eating races who penetrated into the plains of Asia, became shepherds and lived much on milk, which contains chlorine and has a bleaching effect. The Caucasians were another branch who became still whiter through adding salt to their dietary. Common salt is a strong chloride, and is a powerful agent in bleaching the skin. The effect can be seen on negro children who have been brought up on a white dietary; they are never as black as their kindred who have not abandoned vegetarianism. Bergfeld's book is "interesting if not important."

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#### ETHICS OF HIPPOCRATES

"Touching his state of mind, he (the physician) must be heedful of the following; he must not only know how to be silent at the right time; but he must lead a well-ordered life, for this adds much to his good repute. Let his disposition be that of a man of honor; and as such let him behave to all honorable men in a friendly and easy spirit. Precipitation and impetuosity are not liked even though they be of use. As to his bearing, let him wear an expression of sympathy and not show vexation, which would indicate presumption and misanthropy. Who, on the other hand, laughs readily and is at all times merry becomes a burden, whence this is particularly to be avoided. 'The physician who is also a philosopher approaches the divine.'" In these words by "philosophy" one should understand "ethics."



## DIGEST OF CURRENT MEDICAL LITERATURE

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*The Treatment of Tuberculosis by the Family Practitioner.*—The essentials in the modern treatment of tuberculosis (disposition of the sputum; rest; fresh air and sunshine; abundant nutrition; and finally medication) are now well known. But Dr. Abraham Jacobi in *Medical Review of Reviews* has from out of his rich experience emphasized a number of points which should be of the greatest value to the general practitioner, upon whom, by the way, the brunt of the antituberculosis fight must fall.

Rich patients are not more intelligent or painstaking than the rest, but their means permit them to follow the cure; fairly well to do mechanics and small shop keepers are in this respect rarely able to emulate the rich, else their business or their families should suffer; most sufferers are poor working people, men who must be content with simple rules of diet, hygiene and medication.

The treatment of the tuberculous in the office is more or less routine. No single therapeutic factor is a cure by itself. The quality of the air alone will not cure the sick any more than will a mixture of salts and water in some mineral spring, or some known chemical relation of albumenoids and carbohydrates in an article of food. Change of climate is mostly a negative remedy and cannot be expected to offer more than the possibility of favorable external circumstances. The physician cannot cure a consumptive as he can a malarial patient; but he can influence the bronchial mucosa, relieve the cough, ease the insomnia, stop the nightsweats, improve cell metabolism and increase tissue resistance. Such things contribute to the recovery, and at least are an addition to the life duration and to the working facilities. This should be appreciated more especially if the hygienic and dietetic recommendations cannot be followed. Ease of mind and body, rest, fresh air, and plenty of digestible food are requirements without which the high tuberculosis death rate will continue. But medication adds much to our powers (though organotherapy is valueless and serotherapy of doubtful value). (The many cases of extinct pulmonary tuberculosis found on autopsy prove that recovery takes place unknown to the individual.) Our medication can at least make the patient comfortable, by so much improving the status. When an opiate secures sleep and rest, when a dose of agaricin, atropine or camphoric acid, or the external application of guaiacol, or washing with vinegar, reduces temperature and nightsweats, we furnish examples of relief by medication: Sanatorium results will be better when the out of doors and rest

cure specialists will combine medication with hygiene and diet. Jacoby has used guaiacol twenty, and arsenic fifty years. Brunow has shown that there is increase of weight of animals fed with arsenic; of appetite and diuresis when guaiacol is given them. Colonies of tubercle bacilli would grow on glycerin agar though it contained guaiacol; but they would be killed when the glycerin contained guaiacol *and* arsenic. Animals have withstood tuberculosis when fed on guaiacol and arsenic. Arsenic has a specific antituberculosis action: guaiacol has no such effect, but it increases the appetite, diuresis and the elimination of nitrogen, and it relieves fever and perspiration. Arsenic acts as a preventive by fortifying the cell; it enhances cell growth; it is effective in incipients as well as in advanced cases. There is no contraindication to arsenic in advanced cases unless the fever is very high and the digestion is impaired by the drug; then arsenic should be stopped temporarily. "While I have given arsenic in thousands of cases of nervous and infectious diseases I have observed no sequelae except edema, enteritis, dermatitis or moderate neuritis." In general debility, anemia, chlorosis, rachitis, and osteomalacia, lymphoma, sarcoma, leukemia, syphilis, pseudoleukemia, malaria and other parasitic diseases (sleeping sickness, relapsing fever, pellegra), the use of arsenic in proper combinations has been indicated. This drug has no therapeutic effect unless combined with oxygen as an arsenite of potassium or of sodium or as arsenous acid (arsenic trioxide). As a rule such a combination may be given for a long time without bad effects; some hydrochloric acid should be given coincidentally, or black pepper with arsenic (Asiatic pills).

Guaiacol carbonate is easily taken, has almost no taste and has favorable properties besides its valuable effect on tuberculosis. Among the patients to whom Jacoby first gave this drug "there was hardly one who did not look and feel better; even a few seemingly hopeless cases with large cavities asserted that they ate better, slept better and sweat less. Most looked fairly well and their strength improved. In almost none had the emaciation increased, most had gained flesh, one had gained ten pounds in two months. In many digestion and appetite had improved at once. The cough became lessened, and after a month or two expectoration appeared to be more mucous and less purulent. In all the cases the diagnosis, unless absolutely clear, had been confirmed by the findings of tubercle bacilli. Other good preparations of guaiacol are benzosol, styracol, thiocol—seventy or more. They have in general an anti-fermentative action; they are not dissolved in the stomach, but in the lower part of the intestine. They improve digestion and nutri-

tion. To what extent absorbed portions of the drug enter the blood and so become directly concerned with the afflicted pulmonary tissue, is not yet known.

Insomnia saps the strength and undermines the resisting power of the patient; the fear of morphinism need not obtain in advanced tuberculosis, since we do not expect recovery. Insomnia with night-sweats is met by morphine plus atropine (1/60 gr.) in a pill; to which, when there is constipation, we add aloin. Night-sweats require open windows, frequent drying with a towel held in readiness for immediate use, and a vinegar and water wash at bedtime, also (when required) later in the night. Duboisin, agaracin, and camphoric acid are other remedies. Coughs may be modified by a selection among the vast number of opiates and the right combination for given cases "are the functions of the discerning physicians." A frequent prescription of Jacoby is: R Camphor, 100, codein and ipecac pulv. aa 1.0; Hyoscyami 5.0 M. Ft. pil. 80. Sig. One Q. 3-4-5 hours; colocynth and digitalis may also have to be added to the combination.

The fatality of tuberculosis is not due, or at any rate is less due, to the bacillus than to the ravages of a mixed infection. Hence emaciation is not caused by the tubercle bacillus. The frequency of complete recovery from pulmonary tuberculosis, as substantiated by the numerous postmortem findings of deposits, proves that the bacillus may not give rise to the degenerative and fatal processes at all. Tubercular infiltrations become encapsulated and inactive. The patients die of secondary complications. A death is due to pyemia rather than to uncomplicated tuberculosis. Could we but reduce the ailment to its uncomplicated nature the patient might be practically cured. Laryngeal tuberculosis occasions dreadful dysphasia; gargles are of no avail. Jacoby uses a spray of nitrate of silver (one-fourth to two per cent.) twice or thrice a week either through the mouth or the nares. The excessive pain caused by eating and drinking may be eased by the local application of a cocaine solution a few minutes before eating. Better still is a Magendie five drops locally), or a hypodermic tablet of morphine (gr. 1/8 to 1/6) placed on the back of the tongue and sucked down without water; the effect is almost immediate, nearly like that of a hypodermic injection.

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*Peristaltic Hormone.*—In 1908 Zuelzer (*Berl. klin. Wochenschr.*, 48, 1908) made the suggestion that normal intestinal peristalsis depends on the presence in the blood of a specific hormone substance. So far as Eason, *Edinburgh Medical Journal*, June, 1912, has been able to ascertain, experimental proof has not yet been obtained of

Zuelzer's assertion, except by one or two of his collaborators, and it appears that meantime many clinical workers have already submitted the treatment of cases of chronic constipation. Arnaud (*Lyon Méd.*, the so called peristaltic hormone to practical test by employing it in 1912, No. 1, p. 20), however, has recently drawn attention to the fact that MM. Henriquez and Hallion had stated, at a meeting of the Société de Biologie, 20th February 1904, that the injection of secretin was always followed after a short interval by an evacuation of a liquid discharge from the bowels. Hallion, Laboulais, Brégeon, Millon and Claisse about this time each reported the successful treatment of cases of chronic constipation by the oral administration of an extract of duodenal mucosa. In all 14 successful results were reported out of a total of 41 cases treated. Various analogies led Zuelzer to suppose that the stomach might be the organ chiefly concerned in the elaboration of a peristaltic hormone, and he succeeded in preparing from its mucous membrane an extract which, on intravenous injection into a chloralized rabbit, caused in a few seconds visible peristalsis in the exposed gut, and evacuation of the bowel.

The extract is prepared as follows:

A recently fed rabbit is killed and its gastric mucosa treated with salt solution or dilute hydrochloric acid. From the extract obtained the albumen is removed by treating with alcohol. An extract prepared from a stomach during the phase of physiological rest does not contain the active constituent. Active extracts have been obtained not only from the stomach of rabbits but also from that of pigs and horses, and in the case of cattle from the fourth stomach—that which is charged with the work of digestion. Duodenal extracts are weaker and more irregular. Owing to its hormone character, the active constituent should be, and is, found in the blood. The therapeutic extracts are prepared, however, from the spleen, and for two reasons, viz.: aseptic preparations and large quantities are more easily obtained. It is still an open question whether the spleen is merely a place of storage or is also an elaborating organ.

Reference has already been made to the effect produced in the rabbit by intravenous injection, viz.: an energetic peristaltic process beginning in the duodenum and passing on to the rectum with the consequent expulsion of its contents. When an intestinal loop of the chloralized injected rabbit is floated in salt water it is observed that the scybala are moved down the gut. In some experiments where the peristaltic action was particularly strong an immediate liquid evacuation occurred. From this it has been inferred that an increased transudation occurs, as the entire process only occupies frac-

tions of a minute. The fluid state of the evacuation might, however, equally be explained by the rapid transit of the bowel contents. The action resembles that produced by physostigmine, but the tetanic spasm does not occur. Thus the process seems to conform more to the physiological.

What is the nature of the therapeutic action? Zuelzer suggests that in chronic constipation the normal production of peristaltic hormone fails and that the extract when injected and absorbed not only suffices to produce peristalsis, but may also suffice to incite to a normal production of peristaltic hormone. Alternately, he suggests that the incitement to peristalsis is conveyed by the nerves, and that the extract exercises a specific irritation on the abdominal ganglia. In chronic constipation there may be autotoxic damage of the nerve apparatus, or the patient may not have reacted for a long time to the normal irritation or stimulus. If, however, an exceedingly strong stimulus be given to the nerve mechanism by the artificial introduction of peristaltic hormone, this mechanism may be restored to a responsiveness to the normal hormone stimulus. Zuelzer considers the latter theory more probable. Other theories found in recent papers cannot be referred to in this résumé.

Clinical Observations by Zuelzer and Saar.—Each of these chose the intramuscular method of injection. Following injection there was little local pain, but both noted a short rise of temperature to 37.5-38° C., which did not affect the heart. Saar (*Mediz. Klinik*, II, 1910) noted also slight headache, mild fever, a feeling of soreness in the body, increased frequency of the pulse, flatus, and peristaltic unrest—"hormone fever." Zuelzer (*Mediz. Klinik*, II, 1910) found that the injection was effective on the 2d and 3d day, but sometimes on the 5th or 7th thereafter a daily motion occurred for some months. In some cases this regularity was observed for six months. Saar found it more satisfactory to administer castor oil a few hours after the injection, as a *Schiebe-mittel*. Zuelzer experimented on 21 cases. These had suffered from constipation from 1 to 20 years. The sufferers had tried all forms of drugs, electricity, massage, etc. Fifteen on treatment with the extract gave entirely successful results, while six remained as before the injection. The results were good in both spastic and atonic forms of constipation.

Saar had three successful cases and one or two failures.

Zuelzer refers specially to the improvement produced in two cases on intestinal atony of Crämer, which is characterized by intestinal fermentation and frequent unsatisfactory clay-colored stools. In both cases after injection a single satisfactory daily evacuation occurred, the production of flatus ceased, and the color of the motions became



normal. He concludes that in these cases the hormone has regulated the intestinal innervation. He suggests that the intravenous injection should be of great value in cases of postoperative paralysis of the bowel and even in some cases of ileus. In explanation of the unsatisfactory results in 29 per cent. of Zuelzer's cases, he states that all the cases treated by him were of a severe type. He prescribed no dietetic measures except the recommendation to avoid rice, cocoa, and red wine. He adds that the whole subject of constipation requires reconsideration since the discovery of peristaltic hormone. In successful cases methodical exercises of the abdominal muscles and a suitable diet should be resorted to, as doubtless these will be helpful in restraining the tendency to relapse.

Altogether there have been reported to date 112 cases treated with hormone, with 75 successful and 37 unsuccessful.

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*By Effects of Hormonal.*—Rosenkranz, *Münchener medicin. Wochen.*, April 23, reports symptoms resembling those of air embolism coming on during the injection of 10 c.c. of hormonal. After gasping for breath for a time the patient screamed that his head was bursting, his face was drawn and eyes fixed, the pulse accelerated. The dyspnea soon subsided after the headache developed, and the latter gradually declined in the course of several hours. The intravenous injection of the hormonal was given two days after a second laparotomy to release adhesions which had formed nineteen days after an appendicectomy. The patient was a young merchant; seven hours after the injection an enema succeeded in bringing a stool. A transient increase in peristalsis followed half an hour after the injection, as also in another case with complete paralysis of the intestine in which flatus passed a short time after the hormonal had been injected. This patient succumbed later to fulminating peritonitis.

Frischberg, *Münchener Medizin. Wochen.*, April 30, states that the hormonal answered the desired purpose in the case reported, but only after a threatening collapse. Before the injection was concluded the patient, a man of 36, complained of intense headache, the pulse grew weak, so that camphor had to be injected, the face was slightly cyanotic, and a very severe chill, lasting thirty minutes, followed. At its close the body temperature was 41 C. (105.8 F.), and then came profuse perspiration. During all this period the patient was confused and delirious, tossing in bed and having to be held to prevent his getting up. The injection had been made the fourth day after an operation for chronic appendicitis under chloroform, and 20 c.c. of hormonal had been injected, as the abdomen

was enormously distended and the bowels had not moved. The action of the hormonal became evident even during the chill; flatus passed and the abdomen subsided to its normal size, with stool during the night.

J. A. M. A.

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*Acute General Peritonitis.*—Primary lesions are rare; sometimes they may be rheumatic. Secondary peritonitis results from traumatism by the extension from inflamed adjacent organs, or from bacterial infection without apparent intestinal lesion. Perforation is perhaps the most common cause; and the lesion may follow acute infections; or it may accompany chronic nephritis, rheumatism, pleurisy, tuberculosis and septicemia. Bacteria found are *B. coli communis*, the ameba coli, the strepto- or staphylococcus, the gonococcus and the pneumococcus.

The peritoneum is uniformly or locally congested. The intestine is distended, and its coils often adhere to one another. In cellular peritonitis the congestion is the only visible lesion; under the microscope the peritoneal endothelium is increased and enlarged. In exudative peritonitis the exudate is fibrinous, serofibrinous, purulent and hemorrhagic; it may be very slight or so much as to fill the abdomen.

One often finds a previous history of one of the causes given; perforation or sepsis is followed by a chill and pain varying in the beginning with the initial site of the inflammation; later the lesion becomes general. The patient lies on the back in the characteristic attitude—knees flexed and body bent to relax the abdominal muscles, which, first on the side where the pain begins, are like to be rigidly contracted. The abdomen becomes distended and tympanitic. Vomiting, often repeated, is an early symptom. Constipation is the rule; diarrhea may follow. The temperature may at first become 104-5 and then lower; it may not rise above the normal. The pulse is frequent, small and wiry—100 to 150; respiration frequent and shallow. The tongue is dry, red, later perhaps fissured. Urination is frequent and painful: there may be retention. The Hippocratic countenance develops—the face pinched, eyes sunken, expression anxious, skin of the face lead-colored or livid. Hiccough, muttering delirium or stupor may be present. The abdomen, at first rigid and tender, is later distended, sometimes with friction fremitus. Signs of ascites may develop. The apex beat may be displaced upward and to the left.

The heart becomes weak and irregular, the respiration shallow, the rectal temperature high, the skin cold, pale and livid; death must greatly be feared—sometimes sudden, usually in from three to five

days, less often in 36 to 48 hours, even after ten days. The prognosis depends upon the cause of the peritonitis and the nature of the infection: it is usually bad after puerperal sepsis, induced abortion, perforation of the intestine or stomach, or a ruptured abscess.

The diagnosis is made by the history of the preceding cause (appendicitis, gastric ulcer, suppurative pelvic lesions and the like) and by the sudden onset of pain, tenderness and distention, vomiting, usually with fever, ascites and prostration. We differentiate: from acute enterocolites, in which latter the pain is more colicky, and the diarrhea and collapse more marked. From embolism of the mesenteric artery, by the history and by exploratory incision. From acute hemorrhagic pancreatitis, in which a tumor may develop in the upper part of the abdomen, and by laparotomy. From ruptured tubal pregnancy, in which other signs of pregnancy are usually present, the tumor being palpable by the vagina. From hysteria, in which there are hysterical stigmata and variably symptoms, which may disappear even while the skillful examiner diverts the attention.

Localized forms of the acute disease are: Appendicular peritonitis, very nearly related to appendicitis, which lesion has been redundantly described. Pelvic peritonitis, in which one finds puerperal infection, gonorrhea or tuberculosis of the uterus or adnexa: there is usually pyosalpinx with matting together fimbriae, ovary and intestines, sometimes with localized abscesses, the lesion extending to a general peritonitis.

Subphrenic peritonitis may be caused by traumatism; but it is usually secondary to diaphragmatic pleurisy, empyema, tuberculosis or cancer, or to hepatic cancer, cyst or abscess; to abscess of the gall bladder or right kidney, or to the perforation of a gastric or intestinal ulcer. As to pathology: the subphrenic peritonitis may be fibrinous or suppurative. It involves the opposed surfaces of the diaphragmatic and hepatic peritoneum, or it may be confined to the lesser peritoneal sac. The formation of adhesions usually causes a localized abscess which (especially in cases due to gastric perforation) may contain air-subphrenic pyopneumothorax. The symptoms of a subphrenic peritonitis generally follow or accompany those of one of the causes mentioned. The onset is usually marked by sudden local pains, increased by deep inspiration, tenderness and by vomiting; then come chills, irregular fever, sweating, dyspnea due to pressure on the diaphragm, and emaciation. There may be empyema or pulmonary abscess, by reason of a perforated diaphragm. Or the abscess may point through the abdominal wall. If the peritonitis be in the greater sac, the abdominal wall is prominent above the liver, which is displaced downward. A diaphragm displaced upward

causes flatness like that of empyema; or tympany, as in pneumothorax, if gas is present in the abscess cavity. If the lesser sac is inflamed the tumor and area of dulness caused by the abscess, being behind the stomach, are increased if that organ is full of liquid; and obscured if it is filled by gas. Pressure upon the diaphragm, by air in the cavity, may give signs simulating left-sided pneumothorax.

The treatment of acute peritonitis: Absolute rest in the most comfortable position. Morphine up to one-half grain by hypodermic, repeated (one-fourth grain) at safe intervals when necessary to relieve pain and keep the patient quiet. Ice cold cloths, hot fomentations or turpentine stupes for relief of pain, avoiding thick and uncomfortable applications. Leeches over the abdomen are sometimes employed early. Saline purgatives are recommended by some; but should never be given if perforation of the stomach or intestine is suspected. One should then rely upon restriction of peristalsis by morphine. For nourishment: stop food and drink temporarily; cracked ice to be given. Diet: hot or cold milk with lime water, Vichy or peptonized if necessary; rectal feeding if vomiting persists. For tympanites: high rectal enemata containing turpentine. For cardiac weakness: strychnin and whiskey as needed. Surgical treatment should be considered from the outset. In localized peritonitis incision and saline irrigation with or without drainage.

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*Burns.*—Burns are divided into three kinds according to extent and character. Simple burns or those of the first degree: dermatitis erythematosa, chiefly producing dilatation of the capillaries, with exudation of serum and local inflammation. Dermatitis bullosa accompanied by vesication; and third, dermatitis escharotica; destruction of the skin from involvement of the papillary layer only, to total destruction to be followed by gangrene and scar formation.

Local symptoms are those of acute inflammation and pain. In severe cases, writes Haase in the *New York State Journal of Medicine*, July, 1911, there is shock, mostly psychic, thirst, rise of temperature, rapid and weak heart action, singultus and autointoxication. There may be vomiting, diarrhea which may be bloody, casts, albumin and blood in the urine, and delirium to be followed in fatal cases by labored breathing, stupor and coma. Complications, pneumonia, pericarditis, meningitis, cerebritis, peritonitis, septic infection, hemorrhage from ulceration and cicatrices.

Death results from: 1. Shock or excessive irritation to the nervous system. 2. Destruction of the red blood corpuscles. 3. Overheating of the blood. 4. Thrombi and emboli. 5. Loss of body

heat and consequent excessive action of the heart. 6. Intoxication, the toxins being formed in the injured tissue; experiments showing that fluid expressed from burned or scalded skin when injected into animals cause death; also when small pieces of the injured skin are introduced into the abdominal cavity of an animal it caused its death through absorption of the toxins. These toxins are soluble in water or aqueous fluids as was proven by washing them in sterile water before introducing into the animal, with no signs of poisoning, which shows that wet dressings to extensive burns should not be used.

Burned areas are sterile because of the heat; and if not infected by unclean hands, instruments, or applications remain so.

For small burns, vaseline to exclude the air. Pure alcohol if applied immediately causes pain for a few minutes, but acts as a chemical antidote. Blebs should be drained at dependent borders and the epidermis preserved. In extensive burns morphine will be indicated to control pain. Shock will be relieved by aromatic spirit of ammonia, camphorated oil, coffee, saline infusion, strychnia and strophanthus. Hot blankets to maintain body temperature and relieve internal congestion. Cathartics, diuretics, water and saline solution to excrete the toxins. Extensive burns should have all necrosed tissue cut away to prevent absorption. When granulating surfaces appear, begin skin grafting to lessen scar formation. Rubber tissue makes an excellent dressing if cut to fit wound without overlapping. If wound begins to slough with offensive discharge use brewer's yeast. Picric acid or phenol should when used be watched carefully, as many cases of poisoning have occurred from their application.

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*Emotions in Causation of Disease.*—Munzer (*Berliner Klinische Wochenschrift*, June 17, 1912, abst. *J. A. M. A.*, July 27) presents arguments to show that worry, fright and similar emotions induce more or less organic change in the brain. This is the primary result of the emotional stress; the effect of these changes in the brain may be felt in the glands with an internal secretion. The central mechanism regulating the secretions being out of order, the functioning of the glands suffers in turn. He thinks that we have every reason to assume that this explanation applies to certain of the pathologic states in the ductless glands which are known to have developed after emotional stress.

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*Urine Toxicity in Different Diseases.*—Pfeifer and Albrecht, in the *Wiener Klinische Wochenschrift*, April 11, 1912, in discussing this subject, report 133 experiments on guinea pigs with urine ob-



tained from sixty-nine patients suffering from various complaints, including epilepsy, dementia precox, chorea minor, nephritis, infectious fever, etc. The urine from epileptics showed a high toxicity on days when no attacks occurred; shortly before an attack the toxicity was very greatly decreased, even so much as to be free from poisons; while soon following an attack the toxicity reappeared. In dementia precox toxicity increased with the severity of the disease. In chorea minor the toxicity increases and decreases with the severity of the disease; while in infectious fever the toxicity greatly exceeds that of a normal condition and shows a parallelism between the toxicity and the temperature curve. They ascribe the toxicity to the excess in production of substances which in normal conditions are eliminated through the urine following physiological disintegration of albumin.

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*Bastedo's Test for Chronic Appendicitis* is to dilate the colon with air through a rectal tube; if, as the color distends, pain and tenderness to finger point pressure becomes apparent at McBurney's point, there is considered to be appendicitis. The test is not required (nor desirable) in acute cases or in undoubted chronic cases. W. H. Bastedo (*Am. Jour. Med. Sc.*) recommends this test in cases of persistent hyperchlorhydria. As is well known, a latent appendicitis may have its chief manifestation in a gastric derangement. The test is especially useful in differentiating appendicitis and diseases of the right adnexa.

## THERAPEUTIC PROGRESS

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**Ergamine.**—This is a recently isolated active principle of ergot, said to have a marked action on the uterus. Chemically it is an organic base, beta-aminazolyethylamine, and is produced by chemical synthesis. The most important pharmacological action of the substance is as a stimulant of plain muscle, this action being particularly conspicuous in the uterus, which responds to mere traces of this potent substance. In experiments on rodents ergamine produces a rise of blood pressure; in the guinea pig an asphyxiating constriction of the bronchioles. In the monkey—and probably in man—it has a weaker action on the bronchioles, causing a fall of blood pressure due to general vasodilation. Therapeutically, ergamine is indicated when prompt contraction of the uterus is desired, as in cases of postpartum hemorrhage. The dose is said to be one milligram, repeated with great caution.

**Hexamethylenamin.**—In an article (*Journal American Medical Association*, June 29, 1912) by Arthur A. Eisenberg, reporting the use of the above remedy in affections of the upper respiratory tract, we find the following conclusions: Hexamethylenamin is a valuable remedy in the treatment of the inflammatory conditions of the upper respiratory tract. It must be given in doses large enough to secure its full physiological effects. No untoward symptoms were observed while given in fairly large doses (up to 30 grains daily). It seems to prevent possible complications of acute rhinitis, such as bronchitis and sinusitis.

**Involution of the Uterus.**—"I wish," says E. N. Davis, Little Rock, Ark., at a meeting of the Arkansas Medical Society at Little Rock, Ark., May 13-16, 1912, "to condemn hasty termination of the puerperium; and urge immediate repair of lacerations, except when contraindicated by exhaustion due to hemorrhage. I prefer silkworm gut for sutures; loose stitches for best results; shaving and external sterilized dressing. Douches during the first ten days of normal puerperium should be condemned. Laxatives should be given to prevent constipation, when indicated; pulse and temperature should be carefully observed. Good nursing, fresh air, nourishing foods are essentials."

**Pituitary Extract in Rachitis.**—Klotz (*Münchener Medizin Wochenschrift*, May 21, 1912) writes from the Gynecologic Clinic at Tübingen, of which Sellheim is director, to call attention to his success in the treatment of rachitis with pituitary extract. The coloring matter of the hypophysis is particularly rich in phosphorus and hence theoretically seems indicated in rachitis. He supplemented it with calcium carbonate to supply material for bone growth, and states that within five or six weeks the five children became transformed. The effects observed in these cases and in osteomalacia suggest, he declares, that the true cause of both this and rachitis is some disturbance in the phosphorus rather than in the calcium metabolism. A number of clinical and experimental facts sustain this view.

**Local Anesthetics in the Upper Respiratory Tract.**—Freudenthal (*Medical Record*, July 20, 1912) has studied various affections of the upper air passages, the different local anesthetics used and the technic of their application, and urges the importance of guarding against the toxic effects of cocaine and its derivatives, with a special warning in the use of adrenalin.

**Melubrin—a New Antipyretic and Antirheumatic.**—Melubrin, an antipyrin derivative, nearly tasteless and freely soluble in water, should be prescribed, says Hoppe (*Berliner Klin. Wochen.*, May 27, 1912), in powder form, as aqueous solutions easily disintegrate. He has used it in one gram (15 grains) doses, three or four times a day and increased to six or eight doses in the same period in articular rheumatism. Patients showed no subjective symptoms; pain disappeared, temperature was lowered and swelling of the joints abated, leaving some stiffness only. Recurrences were again cured by further use of the drug. A few cases not completely cured after fourteen days' treatment were given three to four grams of salicylic acid for three or four days, which effected a cure.

**Hormonal.**—Jurosz (*Deutsche Medizin, Wochen.*, May 23, 1912) reports a death after intravenous injection of hormonal, and declares that the remedy is contradicted in those with heart affections.

**Luminal.**—Goldstein, in the *Deutsche Medizin, Wochen.*, May 23, 1912, writes that this remedy, marketed as a new hypnotic, does not seem to possess a sedative action, but that he believes it will prove useful in patients suffering from excitement, fear and hallucination symptoms.

**Soap as an Antiseptic.**—Experiments made with hard sodium soap by Pilod (*Presse Médicale*, July 10, 1912), almost universally used in France for preparative work as an antiseptic, particularly on streptococci, were negative. He declares that twenty minutes' use does not sterilize either hands or site of operation, and that soap is useful only to saponify the cutaneous grease, thus rendering the surface more susceptible to the action of real antiseptics.

**Acute Dehydration in Diabetic Coma.**—The fact that the clinical symptoms and signs of diabetic coma indicate an intense dehydration of the body is, writes Chauffard and Rendu in the *Revue de Médecine*, June, 1912, further sustained by an increased viscosity of the blood. They consider this of far greater importance as an etiological factor than the commonly accepted causes dependent on abnormal acidity or protein toxicity. This view leads to a distinct revolution in the treatment. Intravenous injections of hypertonic alkaline solutions are contraindicated. The authors recommend the slow injection of a liter of hypotonic or an isotonic solution.—*Boston Med. and Surg. Journal*, July 18, 1912.

**Eusemin.**—This product, which contains in each c.c. of physiological salt solution 0.0075 gm. cocaine hydrochloride and 0.00005 gm. adrenalin hydrochloride, is preferred by Neuhann (in *Medizinische Klinik*, May 12, 1912) as a local anesthetic. It is pasteurized in autoclaves. The toxicity is very slight, as the solution contains only 0.75 per cent. of cocaine, while the addition of adrenalin diminishes and delays the absorption through contractions of the vessels.

**Odorless Disinfectant.**—The following formula is taken from a former issue of Merck's Report and is said to yield a very efficient preparation:

1.—Ferric chloride .....	4 parts
Zinc chloride .....	5 parts
Aluminum chloride .....	5 parts
Calcium chloride .....	4 parts
Manganese chloride .....	3 parts
Water .....	.69 parts

If desired, to each gallon 10 grn. of thymol and 2 fl. dr. of oil of rosemary, previously dissolved in about 12 fl. dr. of alcohol, may be added.

## AT YOUR LEISURE

### THE HURRY BUG

Franklin Irving Brown, in the *New York Sun*, writes:

The Hurry of the Time is Hysteria in expression!

Those who are inoculated with the Hurry Bug are not producers, but neurotics. Real thinkers and workers are deliberate.

The Exponent of Hurry is the Assassin of Efficiency!

Necessity has produced Speed, which is economy in time and labor.

Speed has increased the revolutions of the wheels of Progress and given more horse-power to production, transportation and communication, and has diminished the necessity for hurry and increased the leisure time, of which the normal individuals have taken advantage.

The Hurry of the Time proceeds from the incompetent, who has not the power for concentrated study to invent, construct or produce, nor the calmness to observe and contemplate activity without neural excitement.

The bipeds who race to and fro on the subway stations, hitting Dignity in the pit of the stomach, knocking Deliberation against a post and treading upon the feet of Suffragism, are adolescent youths, excitable aliens, nervous women, 22-calibre men and chewers of the clove.

It requires poise to come in contact with rapid transit vehicles, whirling electric signs, incessant noises and moving throngs, interspersed with the yellings of infuriated hirelings in uniform.

The well-balanced, controlling his emotions, becomes accustomed to these conditions and barely lifts the eyelids.

The others are the neurotics who tremble, the emotional who get excited, and the immature and weak-willed who leap and run when in the environs of motion and noise.

The East Side Jew, staggering under a shoulder full of pants, approaches Broadway—he runs!

Two girls crossing Forty-second Street, hand-in-hand for safety, get on the car tracks—clang-clang and honk-honk—their lives are sometimes saved!

The crowds are passively waiting at the Fourteenth Street subway station—trains arrive simultaneously, express and local, north and south—some females run toward a car, change their intuition into reverse action and bang into proud abdomens and heroic busts! Calf-faced boys leap and holloa, and—but what's the use!—they cannot help it!

The cabaret restaurant with its Bedlam Orchestra has a patronage of habitués, who think that they are High Livers in the Fast Age. They have the Hurry Bug and they must feed it to the cadence of Turkey Trot!

The Hurry of the Time does not affect two classes of individuals, the one who has educated his Will, and controls himself automatically, and the other, trained by discipline, is controlled by habit.

Policemen do not leap and run into people in a confusion of noisy crowds and whirring wheels.

Soldiers are not seen, dodging, ducking and astonishing traffic on the highways, running in front of cars and skidding in between pedestrians. A Trained Nurse quietly steps out of a Broadway hotel, and the Great White Way seems to hold its excited breath, lower its noisy voice and reduce speed to a tiptoe!

All others become worse under continued excitation and are a menace to themselves and the public, more so than the so called juggernauts of progress, and they are the ones who create panic in crowds.

Crowded terminals, stations and thoroughfares should be policed by man-catchers, and when the Hurry Bug leaps in a H man, the dog net should descend and the victim be removed from urban distractions and sent back to the farm, cured or chloroformed!

#### LADY MACBETH INSANE AND A SLEEP WALKER

DOCTOR—I have two nights watched with you, but can perceive no truth in your report. When was it she last walked?

GENTLEMAN—Since his majesty went into the field, I have seen her rise from her bed, throw her nightgown upon her, unlock her closet, take forth paper, fold it, write upon 't, read it, afterwards seal it, and again return to bed; yet all this while in a most fast sleep.

DOCTOR—A great perturbation in nature, to receive at once the benefit of sleep and do the effects of watching! In this slumbry agitation, besides her walking and other actual performances, what, at any time, have you heard her say?

GENTLEMAN—That, sir, which I will not report after her.

DOCTOR—You may to me, 'tis most meet you should.

GENTLEMAN—Neither to you nor any one, having no witness to confirm my speech.

*(Enter LADY MACBETH with a taper)*

Lo you, here she comes! This is her very guise, and, upon my life, fast asleep. Observe her; stand close.

DOCTOR—How came she by that light?

GENTLEMAN—Why, it stood by her: she has light by her continually; 'tis her command.

DOCTOR—You see, her eyes are open.

GENTLEMAN—Ay, but their sense is shut.

DOCTOR—What is it she does now? Look, how she rubs her hands.

GENTLEMAN—It is an accustomed action with her, to seem thus washing her hands: I have known her continue in this a quarter of an hour.

LADY MACBETH—Yet here's a spot.

DOCTOR—Hark! she speaks: I will set down what comes from her, to satisfy my remembrance the more strongly.

LADY MACBETH—Out, damned spot! out, I say!—One: two: why, then 'tis time to do 't. Hell is murky. Fie, my lord, fie! a soldier, and afeard? What need we fear who knows it, when none can call our power to account? Yet who would have thought the old man to have had so much blood in him?



DOCTOR—Do you mark that?

LADY MACBETH—The thane of Fife had a wife; where is she now? What, will these hands ne'er be clean? No more o' that, my lord, no more o' that; you mar all with this starting.

DOCTOR—Go to, go to; you have known what you should not.

GENTLEMAN—She has spoke what she should not, I am sure of that: heaven knows what she has known.

LADY MACBETH—Here's the smell of the blood still: all the perfumes of Arabia will not sweeten this little hand. Oh, oh, oh!

DOCTOR—What a sigh is there! The heart is sorely charged.

GENTLEMAN—I would not have such a heart in my bosom for the dignity of the whole body.

DOCTOR—Well, well, well,—

GENTLEMAN—Pray God it be, sir.

DOCTOR—This disease is beyond my practice: yet I have known those which have walked in their sleep who have died holily in their beds.

LADY MACBETH—Wash your hands? put on your nightgown; look not so pale: I tell you yet again, Banquo's buried: he can not come out on 's grave.

DOCTOR—Even so?

LADY MACBETH—To bed, to bed: there's knocking at the gate: come, come, come, come give me your hand: what's done cannot be undone: to bed, to bed, to bed.

(Exit LADY MACBETH)

DOCTOR—Will she go now to bed?

GENTLEMAN—Directly.

DOCTOR—Foul whisperings are abroad: Unnatural deeds

Do breed unnatural troubles: infected minds

To their deaf pillows will discharge their secrets:

More needs she the divine than the physician.

God, God forgive us all! Look after her;

Remove from her the means of all annoyance,

And still keep eyes upon her. So, good-night:

My mind she has mated, and amaz'd my sight:

I think but dare not speak.

GENTLEMAN—Good-night, good doctor.

*Macbeth, Act V, Sc. i.*

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MACBETH—How does your patient, doctor?

DOCTOR—Not so sick, my lord,

As she is troubled with thick-coming fancies,

That keep her from her rest.

MACBETH—Cure her of that.

Canst thou not minister to the mind diseas'd?

Pluck from the memory a rooted sorrow,

Raze out the written troubles of the brain,

And with some sweet oblivious antidote

Cleanse the stuff'd bosom of that perilous stuff

Which weighs upon the heart?

DOCTOR—

Therein the patient

Must minister to himself.

MACBETH—Throw physic to the dogs, I'll none of it.

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If thou couldst, doctor, cast  
 The water of my land, find her disease  
 And purge it to a sound and pristine health,  
 I would applaud thee to the very echo,  
 That should applaud again. Pull 't off, I say.  
 What rhubarb, senna, or what purgative drug,  
 Would scour these English hence?

*Macbeth, Act V, Sc. iii.*

## A POE CURIOSITY

The following autograph in manuscript was purchased at a sale and as it does not appear in editions of his works, it is here given, as a Poe curiosity:

When lying on my clayey bed,  
 In icy sleep,  
 Who there, by pure affection led,  
 Will come and weep—  
 By the pale moon implant the rose  
 Upon my breast,  
 And bid it cheer my dark repose—  
 My lowly rest?  
 Could I but know when I am sleeping  
 Low in the ground,  
 One faithful heart would there be keeping  
 Watch all night around,  
 As if some gem lay shrined beneath  
 That sod's cold gloom,  
 'Twould mitigate the pangs of death  
 And light the tomb.  
 Yes, in that hour if I could feel  
 From halls of glee  
 And Beauty's presence one would steal,  
 In secrecy,  
 And come and sit and weep by me  
 In night's deep noon,  
 Oh, I would ask of Memory  
 No other boon!  
 But ah! a lonelier fate is mine—  
 A deeper woe!  
 From all I love in Youth's sweet prime  
 I soon must go—  
 Draw around me my cold robes of white,  
 In some dark spot.  
 And sleep through Death's long, dreamless night,  
 Lone and forgot.

—*New York Times.*

## MISCELLANY

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### AN APOLOGY

We regret an error in the titles given Dr. George F. Butler in his article "Some Ideals and Attainments Possible in Medicine," appearing in the August issue of *THE AMERICAN PRACTITIONER*, page 370. They should have been A.M., M.D., not Ph.D., and he should have been named Prof. and head of Department of Therapeutics and Prof. of Preventive and Clinical Medicine in the Chicago College of Medicine and Surgery, not late Prof. of Materia Medica, Northwestern University, Chicago. The MSS., however, which was sent us by a mutual friend, was as given in *THE PRACTITIONER*. As no request for proof was made, none was sent. It was an embarrassing and unfortunate mistake, which the Editor deeply regrets, but for which he can hardly be held responsible. An apology, however, is due Dr. Butler, and we trust he will accept it as here given.

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### DO CRIMINALS LOOK THE PART?

I have been asked, writes O. F. Lewis, General Secretary of the Prison Association of New York, in the *New York Times*, August 31st, in connection with the very prominent murder case now engaging the attention not only of New York but of the entire country, whether in the physiognomies of criminals there is any special type. Or, to put it differently, whether there is anything in criminals' physiognomies on which not only officers of the law but novelists and painters can work, or from which they can deduce evidences of crime.

Such questions arise from the ever-recurring desire to be able to tell the ways and thoughts of people by their faces and expressions. Criminologists and penologists on this side of the water give little value to-day to the so-called "stigmata of crime" which were particularly emphasized by Lombroso and others of the Italian school. Receding foreheads, bull-dog chins, projecting ears, high cheekbones, bull necks, and other supposedly criminalistic signs have all failed so often to disclose criminality that the detective to-day who started on such trails might find himself suddenly embarrassed by his captures.

On the other hand, it is recognized that to some extent deviations from what we consider the normal or symmetrical type of face may sometimes indicate forms of degeneracy, particularly when such deviations are very marked. The "long and short of it" is, however,

that problems of degeneracy must be solved by specialists, not by amateur or simply interested students of physiognomy.

Replying specifically to the question as to persons under suspicion or arrest in connection with the Rosenthal murder, I fail to see anything to distinguish them in appearance from thousands and tens of thousands of honest, law-abiding, and hard-working citizens of New York.

Crime is to such an extent a matter of environment that I place little value upon facial traits, particularly those which are relatively unchangeable. My feeling is confirmed by the thousands of released prisoners who in the last few years have passed under my observation at the Prison Association.

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#### LOVE MARRIAGES PRODUCE BEST OFFSPRING

A defense of love at first sight was made by Sir James Crichton Browne to-day in his Presidential address to the conference of Sanitary Inspectors.

"I am a believer," the celebrated physician said, "in the love match, not only from a romantic but from a eugenic point of view. In a very large proportion of marriages love plays no part, or only a very subordinate one. Rank, social influence, ambition, and what Carlyle calls the cash nexus are dominant factors, but marriages thus made are not the most likely to produce favorable results in the next generation.

"Our aristocracy, the late Professor Laycock used to say, has been saved by its occasional alliances with actresses and milkmaids. There must be deep physiological significance in the spontaneous, inexplicable attraction that instantly draws two persons into sympathetic union, and the offspring of unions thus brought about are, I believe, more likely to be healthy than the offspring of those who have allied themselves in cold blood from mercenary or sordid motives.

"I am not defending foolish, hasty early marriages, of which we have a great deal too many. The abolition of *Gretna Green* was a loss to the novelist, but a gain to the country. Love at first sight of the right kind blesses him who has experienced it, and is charged with blessings for those who come after him."

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#### CALL TO FIGHT INFANTILE PARALYSIS

Because of the recent rapid increase in the prevalence of infantile paralysis in Buffalo, Commissioner Porter of the State Department of Health sent a personal communication to-day to every physician in that city urging their co-operation with the Buffalo Health De-

partment in a common endeavor to study the cause of the outbreak and to institute such measures as may be necessary for its speedy suppression. Commissioner Porter has also requested the assignment of an expert in the disease from Washington.

While last year only nine cases occurred in Buffalo, eighty-six cases have been reported this year, of which eighty have developed since July 1st. While apparently centralized in a few instances, no portion of the city has escaped.

"The disease is varying widely in its intensity," says a statement by the Health Department, "many cases being of a mild character, while six have terminated fatally. Its accompanying paralysis in many instances appears transient, while in others indications of permanency are persistent. One singular feature of the present epidemic is found in the fact that thus far no two cases have occurred in the same family."

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#### BURBANKING THE HUMAN RACE

In an authorized interview in San Francisco, August 31st, President David Starr Jordan of Leland Stanford University, expanded his recent address in Salt Lake on the possibilities of eugenics, or "Burbanking the human race."

"I used the phrase "Burbanking the race," he said to-day, "to show that although systematic scientific selection of mates could be made to produce great physical strength, beauty, endurance, and even mental power, those very persons who might be thus effectively mated would never submit to State dictation.

"If they would, they must in time eliminate the most vital elements in human evolution—love and initiative. Love is the best basis for marriage, and love is a very real and noble thing, in spite of the baseness of its many imitations.

"The value of eugenic study is in the diffusion of sound ideas of life and parenthood. Government can do something by refusing parenthood to those who cannot care for themselves because of feeble-mindedness, disease, and vice, but legislation must be undertaken very cautiously, giving the individual the benefit of all doubt."

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#### THE LAW OF HEREDITY

There are ten laws of heredity that govern life. This fact was determined at the recent meeting of the medical section of the American life insurance convention, where the subject was discussed at length in all its phases, says the *San Francisco Chronicle*.

Do you resemble in your mental and physical attributes your father, or your mother, or some particular grandparent?



When you reach a certain age will certain traits that one of your parents developed at that age become yours?

These questions, together with the question of health heredity, were thoroughly discussed at life insurance convention.

As to health it was decided that heredity is an important element in longevity, though only a few diseases are inherited. The tendency to disease is, however, often handed down from parents to children. The following ten laws of heredity were acknowledged to be correct:

The child tends to inherit every attribute of parents.

Contradictory attributes cannot be inherited from both parents.

The child may inherit the attributes of either parent solely.

It may inherit the father's attributes for one period of existence, and of the mother's for another.

Some attributes have the quality of prepotency, or the tendency to push aside or overrule other attributes.

Attributes which are similar in both parents tend to become prepotent, giving rise to convergent or cumulative heredity.

Attributes may be transmitted in latent form from one generation to another, to another in a third or fourth, or still more remote generation—a phenomenon termed reversion.

Attributes tend to appear in the progeny about the same time of life in which they became manifest in the parents.

Attributes of the father tend to be inherited by the sons, and of the mother by the daughters.

Heredity plays an important part not only in tuberculous and cancerous affection, but likewise in diabetes, rheumatism, gout and many other diseases. We do not inherit tuberculosis, but we do inherit a lessened vitality, or a tendency to contract tuberculous infection. Underweights are usually people who have inherited such a lessened vitality, and they run the further risk of infection from their underweight brothers or sisters who are apt to be infected.

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#### SEVENTY-FIVE PER CENT. OF AMERICAN SCHOOL CHILDREN IN NEED OF MEDICAL ATTENTION

In an estimate furnished the United States Bureau of Education by Dr. Thomas D. Wood, Professor of Physical Education in the Teachers College of Columbia University, he states that "of the 20,000,000 school children in this country not less than 75 per cent. need attention to-day for physical defects which are prejudicial to health and which are partially or completely remediable."

Some of the doctor's conclusions are as follows:

Several million children have two or more handicapping defects;

400,000 have organic heart disease; at least 1,000,000 have or have had tuberculosis; about 1,000,000 have spinal curvature, flatfoot, or some other moderate deformity; over 1,000,000 have defective hearing; about 5,000,000 have defective vision; about 5,000,000 are suffering from malnutrition; over 6,000,000 have enlarged tonsils, adenoids, or enlarged cervical glands; over 10,000,000 have defective teeth which are interfering with health.

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#### STREET CAR VENTILATION

An invention for perfecting the ventilation of street cars has had an extended trial on an electric street car in Manchester, England. The atmosphere, even with the trial car full of passengers, some of whom were smoking, was perfectly clear and good. The innovation seems simple; and there is surprise expressed that the method had not previously suggested itself. A series of cones is arranged in line, the small end of one projecting into the larger open end of the succeeding cone. As the car moves a strong current goes down the first cone into the mouth of the second cone, causing inhaled or foul air to enter the larger open mouth of succeeding cones, and be swept on to the final outlet. In order for a drastic test all other ventilating apertures were thoroughly stopped. Two sets of cones were then fixed at either side of the car. The clearing of smoke from a covered car (bogie type, or double decked is the most trying test. As smoke is heavier than air the foul air will be removed more rapidly than smoke. The invention (writes Church Howe, our Consul at Manchester) is also adaptable to railway carriages, and to workshops, theaters and public buildings. For such uses it would be necessary to use an electric fan or air blower in order to induce a strong current. A commendable feature of this invention is its inexpensiveness: it is said that it will even reduce the cost of street car construction.

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#### BACTERIA IN FRESH EGGS

R. C. Rosenberger in the *New York Medical Journal*, May 11, 1912, states that a fresh clean egg is sterile. The bacteria that are present in broken or cracked eggs, in commercial "dirty" eggs, in desiccated eggs, and in frozen eggs, get into the product from nest dirt on the outside of the egg or from the air during breaking of the eggs, in the process of desiccation, or from the hands of those who break the eggs. When an egg is what is termed "dirty," and when it is cracked so that the membrane is also broken, then colon bacilli may gain access to the egg. Or, if dirty eggs are broken carelessly, or if the hands of those who break them are not clean, then colon

bacilli may gain access to the egg. The colon bacillus may even gain access to the broken eggs from dust blown about in the air. An egg can be fresh and "dirty." A clean fresh egg will remain fresh (and not show gas-producing bacteria) for at least ten months in the ordinary refrigerator, packed in sawdust or bran, or without being packed in any material.

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#### TRAINED NURSES FROM NOBLE FAMILIES

"Nurse Grimston," who has entered a training home at Bow in the East End, happens to be the Earl of Verulam's daughter. The peerage has in the last few years supplied many recruits to the nursing profession. Lady Esher's first aid classes have given an impetus to the movement, while the practical interest in nursing institutions which Queen Alexandra has repeatedly shown is also largely responsible for the hold which the vocation has taken on the minds of women prominent in "society." One of the best known of these nurses is Lady Annesley, who became deeply interested in hospital work and spent much of her time in the wards of Dublin hospitals. But for marriage she would have made nursing her profession; and she eventually founded a village hospital in the grounds of her home in County Down. Lady Hermione Blackwood, the daughter of a marquis and the sister of Lord Dufferin, is President of the Irish Nursing Association.

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#### PHOTOGRAPHING THOUGHTS

Dr. Max Baff, of Clark College, in discussing the discovery credited to the Japanese by which the human thoughts may be photographed, observes that a good way of taking thought photographs would be to expose the film in a vacuum tank, and have the subjects whose thoughts are to be photographed, placed near the tank, even with their heads against it. Developing the film roll after it has been unwound in darkness, with a pair of subjects thinking on a given topic while it was being unrolled, might give some extremely interesting results. It has been well observed that language is given us in order that we may conceal thoughts; if the Japanese are going to succeed in their experiments even language will not avail for concealment. The "palace of truth" will then be open to all!

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#### THE NEW YORK POST-GRADUATE MEDICAL SCHOOL AND HOSPITAL ANNOUNCEMENT

"Special lectures on different topics on Internal Medicine will be given during October by Professor von Noorden of Vienna, Professors His and Strauss of Berlin."

## BOOK REVIEWS

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**Gould and Pyle's Cyclopedia of Practical Medicine and Surgery with Particular Reference to Diagnoses and Treatment.** Second Edition, Revised and Enlarged. By R. J. E. SCOTT, M.A., B.C.L., M.D., New York, with six hundred and fifty-three illustrations. P. Blakiston's Son & Co., Philadelphia, 1912.

One scarcely knows where to begin in reviewing this huge book of information on every medical subject. It has been most thoroughly revised and very materially enlarged. New articles will be found on Bier's Treatment, Blood Pressure; Brill's Disease; Cerebrospinal Meningitis; Colon Bacillus Infection; Food-adulteration; Heart-block; Hookworm Disease; Immunity; Inoscopy; Mosquitoes; Radium; Serum Therapy; Sleeping Sickness; and Vaccine Therapy. Other articles have been rewritten, including the newer Treatment of Syphilis, etc.

A careful examination of the volume reveals confirmation of the editor's statement that in it will be found up to date information on every medical subject, including *treatment* and *diagnosis*. It is cyclopedic in scope; alphabetically arranged, obviating the need of paging or indexing. Easy methods for examination of the urine and diagnosis with treatment of acute poisoning, teeth extraction are included, while the illustrations are numerous and illuminative.

**Arteriosclerosis, Etiology, Pathology, Diagnosis, Prognosis, Prophylaxis and Treatment with a special chapter on Blood Pressure.** By LOUIS M. WARFIELD, A.B., M.D., Asst. Professor of Medicine, Wisconsin College of Physicians and Surgeons, Milwaukee, Wis., etc. With an introduction by W. S. Thayer, M.D., Professor of Clinical Medicine, Johns Hopkins University. Illustrated with twenty-five engravings. C. V. Mosby Company, St. Louis, Mo. 1912.

It is claimed that the stress and strain of our daily lives leads to arterial degeneration, and that this condition has become more frequent in recent years, but then other causes than stress and strain: occupation, infectious disease, alcohol, tobacco, overeating, mental or muscular activity, renal disease, etc., must be taken into account. Prophylaxis therefore must play an important part, as prevention is especially easy of accomplishment while treatment is not always sure to bring a cure. Treatment, however, is fully discussed by Dr. Warfield. The illustrations are fine, type and paper exceptionally good. The book should be widely read.

**Gonorrhea in the Male. A Practical Guide to Treatment.** By ABR. L. WOLBARST, M.D., Professor of Genitourinary Diseases, N. Y. School of Clinical Medicine, etc. International Journal of Surgery Co., New York, 1911.

This is a valuable treatise on gonorrhea in the male. The book is small but covers the subject. It is concise and up to date. It would be well for every physician who treats gonorrhea to study this book, for without doubt there is a lamentable ignorance upon the subject by general practitioners, many holding to the older theories that to stop the discharge is to effect a cure; and then the advice that the patient may marry. How difficult it is to really cure gonorrhea; to determine an absence of the gonococcus is graphically told in this work. We repeat, it would be well to read the book.

**Practical Eugenics: A Lecture.** By WILLIAM J. ROBINSON, M.D. New York. Published by the Critic and Guide Company, New York. 1912.

This small volume contains six chapters which express the views of the author on the recently much-discussed subject of eugenics: Rational Control and Limitation of Offspring; Marriage License without a Physician's Certificate of Freedom from Venereal and Mental Disease; Sterilization of the Feeble-minded, Degenerate and Criminal; Venereal Prophylaxis; serious subjects and such as will require the united efforts of many minds and professions to determine ways and means whereby the human race may more nearly

approach the ideal. Like all new thought, innovations, scholars and others are divided as to what may best bring about the ideal man and woman. Experiments are being carried out in some sections of the world that are condemned in others. There are some, many who object to the means advocated by Dr. Robinson; others who agree with him, but it will be found difficult to bring into operation the measures advocated by him. Those who do not agree with him are men of strong convictions and earnest hearts; men who would acclaim any and all means for the betterment of the human race that they could believe safe and sound.

**A Prisoner of War in Virginia, 1864-5.** By GEORGE HAVEN PUTNAM, Litt.D., Adj. and Bvt.-Major 176th N. Y. S. Vols. G. P. Putnam's Sons, Publishers.

Major Putnam has lived more lives than one; and he is still, I am happy to say, very lively. He began at an early age to do things. He succeeded to a remarkable degree. He is doing them yet. As a young officer in his teens his gallantry got him into trouble and landed him in Libby Prison. His endurance, will-power and sagacity carried him through murderous hardships, which are hard for us of a late generation to appreciate. His intellectual activities since the Great War have made his name known wherever books are read. He has helped to make history and to tell it. In both he has shown the indispensable traits of a hero: *modesty* and *temperate statement*. His style is as clear as his deeds were brave. There is something so manly, straightforward, fair and reasonable in his narrative that a stranger reading it would on occasion vote him into his pet Club without "looking him up." The Major puts his touches of humor always in the right place. In other words, he is logical, tactful and human. His attitude is that of a philosopher with a heart. That is the reason why he seems neither cold-blooded nor over-sentimental. He is careful about rubbing too much pathos into a picture of the fortunes of war. It is plain to be seen that the instinct of the good soldier is in his blood. I think that he could never quite get over being an officer any more than he could cease being a gentleman. He is built that way—and this book shows it.

R. H. B.

**Department of Public Health and Charities with Reports of the Philadelphia General Hospital.** Edited by DANIEL RIESMAN, M.D., Philadelphia. Vol. VIII, 1910.

This volume of some 350 pages contains besides valuable statistical matter, numerous original articles which can be read with profit, especially those on ophthalmia by G. E. de Schweinitz, on Aneurism by A. A. Eschner, Typhoid Carriers by R. C. Rosenberger, Hepatic Drainage by John B. Deaver, etc.

#### DOCUMENTS AND REPRINTS RECEIVED

**Digest of Comments on the Pharmacopeia of the United States of America,** and on the National Formulary for the calendar year ending December 31, 1910. By MURRAY GALT MOTTER and MARTIN I. WILBERT. Government Printing Office, Washington, 1912.

**Investigations of and Tick Eradication in Rocky Mountain Spotted Fever.** By THOMAS B. MCCLINTIC, Passed Asst. Surgeon, Public Health and Marine Hospital Service, 1912.

**Studies on the Virus of Typhus.** By JOSEPH GOLDBERGER, Passed Asst. Surgeon, Public Health and Marine Hospital Service, 1912.

**Examination of Excreta for Typhoid Bacilli.** By L. L. LUMSDEN and A. M. STIMSON, Passed Asst. Surgeon, Public Health and Marine Hospital Service, 1912.

**Report on an Outbreak of Typhoid Fever at Lincoln, Nebraska, in 1911.** By L. L. LUMSDEN, Passed Asst. Surgeon, Public Health and Marine Hospital Service, 1912.

**Sewage Polluted Water Supplies in Relation to Infant Mortality.** By ALLEN J. McLAUGHLIN, Passed Asst. Surgeon, Public Health and Marine Hospital Service, 1912.



# SHAKSPERE'S Medical and Surgical Knowledge

By JOHN W. WAINWRIGHT, M.D., New York

Including References to Anatomy, Physiology, Medicine, Surgery, Obstetrics, Nervous and Mental Diseases, Therapeutics, Dietetics and Hygiene, Ethics, Jurisprudence, Toxicology and Pharmacy. Some 135 Quotations, giving Play, Act and Scene, with Explanatory Notes and an Introductory Chapter with copious cross index.

## REVIEWS:

In the volume before us the writer has, by his own road, come round to this identical point (that we do know a great deal of the real Shakspeare), and made it clear to his readers by a most abundant and interesting array of quotations from the whole field of Shakspeare's works that if he had not actually studied medicine, his mind was yet a storehouse of the medical knowledge of the day. In the scholarly preface to this delightful little book the author points out that the same may be said of his knowledge of theology, or law, or astronomy, etc. Many of the quotations are striking, but not the least interesting feature will be found in the running commentary following the quotations themselves. The frontispiece is an excellent photogravure from a photograph of the portrait which was the original of the Droeshout engraving in the first folio edition edited by Heming and Condell.—*New York Medical Record*, Feb. 15, 1908.

Dr. Wainwright has been delving for that in Shakspeare which refers to medicine. He has certainly gotten together a large and varied assortment of interesting quotations. Running comments add interest and aid in bringing out points or ideas that a cursory reading might fail to catch. Medical men who are lovers of Shakspeare—and there are few that are not—will find in these selections both amusement and instruction. The book is tastefully and beautifully printed and bound, and contains a photogravure reproduction of the Droeshout portrait of Shakspeare.—*Journal American Medical Association*, January 25, 1908.

Many of the quotations adduced to show the dramatist's knowledge of the physiological functions of the body are certainly very striking, and they are a valuable contribution to the study of the manysidedness of Shakspeare.—*The Hospital* (London), April 13, 1907.

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## ORIGINAL ARTICLES

### PRESENCE AND PREVALENCE OF TUBERCULOSIS IN CHILDHOOD\*

By R. W. PHILIP, M.A., M.D., F.R.C.P., F.R.S.

Edinburgh

*Alvarenga Prize, College of Physicians, Philadelphia, 1890. Physician Royal Infirmary, Edinburgh, and Royal Victoria Hospitals for Consumption, Edinburgh. Lecturer on Clinical Medicine and Diseases of the Chest, Edinburgh School of Medicine. Examiner R.C.P., Edinburgh. Hon. Mitglied Gesellsch. für Innere Med. Wien, etc.*

In acceding to the request of the Committee that I should say something introductory to a discussion regarding the occurrence and prevalence of tuberculosis in childhood, I shall endeavor to place before you very briefly one or two thoughts which I trust may prove suggestive.

The past 30 years have seen frequent changes of front towards the tuberculosis problem. None of these is of greater interest or fraught with more practical significance than that which has determined attention to the etiological relationships of childhood to tuberculosis. The older conception which centered thought on the period of adolescence and early adult life is giving place to the belief that the tuberculosis of these periods is, in greater part, the harvest of seed sown in childhood. If this be so, it is manifest that the most hopeful line to be prosecuted in relation to the prevention and eradication of tuberculosis is the study and detection of its earliest manifestations in the child.

If any lesson be written large as the result of the common failure in time past to treat the problem effectively, it is this, that we have looked in too exclusive a fashion at the completed picture of advanced visceral disease and have thought too little of the successive stages leading from inoculation slowly up to this. This is true of

\*Address delivered before the Tuberculosis Conference under the auspices of the National Association for the Prevention of Consumption of Great Britain, at Manchester, 5th June, 1912.

the successive stages of tuberculosis at all periods of life. It is especially true in relation to the progress of the infection in the developing child.

#### NATURAL HISTORY OF TUBERCULOSIS

Tuberculosis is a process of sluggish, insidious spread. The actual point of inoculation may present little or no determinable change. The gradual extension by way of the lymphatic system has escaped notice for the most part. Observation has been drawn to this only when disfigurement has occurred through gross enlargement of one or other gland or group of glands, or when suppuration has supervened.

Take for example the frequent case when tuberculosis enters by way of the tonsils and adjacent glandular structures. The subsequent passage of infection follows the line of the chain of lymphatic ducts and glands. The glands undergo a process of infiltration which involves individual glands successively from above downwards. Yet attention has been but seldom directed to the glandular involvement, save in those instances where grosser enlargement of one or more has taken place, associated with caseation or suppuration. Under ordinary conditions for the most part, the less evident but uniform spread of infection, from gland to gland, is missed. It is the accidental determination of suppuration at one point which generally arouses attention. Yet, in the former case, a subtler, although less obvious, form of infection is in progress.

Whether inoculation has been effected in the tonsillar region or the intestine or at some other point of the mucous surface, the process of spread in the majority of cases is similar, namely through the adjacent lymphatic system. Wherever it be, if the glandular change be relatively slight and correspondingly out of sight, the fact of inoculation is constantly overlooked until the advent of definite symptoms indicates that some organ of importance has been attacked.

In this sense a significant analogy may be traced between the natural history of tuberculosis and of syphilis. In both cases the initial phenomena of inoculation and early spread through the lymphatic system are similar. In each case the fact of inoculation may be missed until its presence becomes evidenced by grosser visceral disease.

#### WATCHFULNESS NEEDED

I know no subject of greater interest than the observation of the changes which occur from week to week, month to month and year to year in the young child who has become infected by tuber-

culosis. I have watched them again and again from the stage of minor involvement of a few glands to that of disintegration of lung or other visceral tissue. My belief is that if childlife were watched with sufficient care and with sufficient suspicion in respect of tuberculosis, we should be in a position to anticipate and prevent most of the doleful harvest. If it be true, as I have no manner of doubt it is, that tuberculosis is much the commonest disease of childlife, there seems need of a more general awakening of suspicion as to its presence amid the varying symptoms of disease in childhood. And the need is no less for careful study—both clinical and pathological—of the course of tuberculosis in the child, so that mere suspicion may be changed into scientific diagnosis.

#### EVIDENCE AS TO PREVALENCE

As to the immense prevalence of tuberculosis in childhood, there can be no reasonable ground for doubt. Statistics on this point, based on exact observation—clinical, pathological and experimental—have been forthcoming from many sources.

#### CLINICAL

##### *A. Clinical Evidence*

The clinical evidence is strong. There is a consensus of opinion that congenital tuberculosis is rare. Even with tuberculous parents the child is very seldom born with tuberculous disease. Whether the parents are tuberculous or healthy, the occurrence of tuberculosis in the child during the first six months of life is relatively infrequent. From that date onwards the frequency of tuberculosis increases steadily.

A number of years ago I submitted the statement, based on personal clinical examination of different groups of children, of school age in Edinburgh, that at least 30 per cent presented definite evidence of tuberculosis. With greater latitude in the interpretation of clinical signs, the percentage would have been considerably greater. Later observations on the same lines, combined with the use of the tuberculin test, have satisfied me that the figure I have quoted was within the truth.

The evidence obtained from the system of the "March-Past" of households, introduced by the Tuberculosis Dispensary, is striking. It is not uncommon to discover during one such examination signs of tuberculosis in three, four or five children from the same house.

Since the introduction of the tuberculin cutaneous tests, a considerable series of observations have been reported from different countries, which all tend to the same conclusion, namely, that tuber-

culosis exists, and can be determined individually, in the majority of school children.

The figures of von Pirquet, Ganghofer, Hamburger, Monti, Franz, and Calmette go to show that in their respective cities most children among the working class population have been tuberculized by the time they reach the age of fifteen. Nor is the statement referable merely to the children of large cities. The observations of Franz included the examination of 400 young soldiers—apparently healthy recruits, who had passed the ordinary physical examination for the service—and among these he found that 61 per cent gave a positive reaction to the tuberculin test.

#### PATHOLOGICAL

##### *B. Pathological Evidence*

The pathological evidence is no less clear. Twelve years ago, Naegeli of Zurich reported that he had found definite signs of tuberculosis in no fewer than 97 per cent of all bodies examined consecutively by him post mortem, *i. e.* of persons dying from different kinds of disease and accident. On such facts was based the well-known aphorism, "Am Ende hat jedermann ein bischen Tuberkulose." (Sooner or later everybody gets a touch of tuberculosis.)

But the true inwardness of the observation was discovered only, when more careful attention was directed to the post mortem examination of children. Hamburger has reported the results in two separate groups. The first series included 401 children, of whom 63 per cent of those between 7 and 10 years of age showed evidence of tuberculosis, and 70 per cent of those between 11 and 14. The second series included 848 children. Of those between 7 and 10 years of age, 63 per cent were found to be tuberculous and 70 per cent of those between 11 and 14. Deducting from the 848 those who had actually died from tuberculous disease, it was determined that of the remainder between 11 and 14 years of age no fewer than 53 per cent had tuberculous lesions. Of special interest is the fact that in this series the frequency of tuberculosis steadily increased from 17 per cent in those of 2 years of age to 53 per cent in those between 11 and 14.

It is a point of much significance that during recent years, with increased refinements of methods, the number of children found to be tuberculous on post mortem examination has steadily grown.

#### EXPERIMENTAL

##### *C. Experimental Evidence*

Experimental research has shown that tuberculosis is of still



more frequent occurrence than clinical and pathological observations had been able to determine. It has proved that various conditions in which it had not been possible to discover characteristic appearances either at the bedside or post mortem table were nevertheless of tuberculous nature. This has been determined in the case of young children, in whom no definite tuberculous lesion could be discovered by the ordinary means, in life or postmortem, with the exception of multiple infiltration of cervical and other glands. From these glands—in the absence of microscopical appearances of tubercle—it has been found possible to prepare an extract, which, when injected into guinea pigs, has produced tuberculosis.

From all this it will be seen that we are confronted by the fact that tuberculosis is vastly common in childhood. Most children have it one time or another. The child's mucous membranes are specially receptive and absorbent. Inoculation occurs readily at any point. The extent of spread depends chiefly on the child's vitality or the resistance offered to the invading organisms by its living cells. This, in turn, is influenced largely by the character of the child's compulsory environment.

Other things being equal, the younger the child, the more easy seems the dissemination of the virus throughout the lymphatic system. The frequency of infection increases in each successive age group. This is doubtless due to the continued, repeated opportunities for infection.

While with advancing childhood the frequency of infection increases, the morbid process progresses as a rule more slowly. Individual subjects differ much in this respect, but, other things being equal, the older the child, the greater is his resistance. With increasing years, the frequency of apparently arrested tuberculosis, *e. g.* in the form of calcified glands and scars, becomes noteworthy. Whether such arrest contributes in any degree to immunity, is a difficult question. Some facts point in this direction. It is possible that some degree of immunization is established thereby. If so, it is comparatively slight and fleeting. In presence of continuous exposure to, or a massive dose of, infection, the immunity readily gives way, and the progress of disease tends to be rapid.

#### SCIENTIFIC OUTLOOK

In this necessarily brief presentation of the subject, I have advisedly dealt with the incidence of tuberculosis in the scientific sense. I am concerned not merely with children, whose infection is clinically easy of recognition, but likewise with those in whom the

infection may be so slight as to have little more than potential significance.

It disturbs me no wise to be told that this conception of tuberculosis is of academic rather than practical value. If we are to understand tuberculosis aright, if we are to form a true judgment on the practical issues of the tuberculosis problem, we require to know the facts with all the exactness of which scientific medicine is capable. We require to keep in view the unity of tuberculosis in its extraordinarily varying manifestations. We must get rid of the artificial distinction between so called medical and surgical tuberculosis. I would remind my critic that, from the practical no less than from the scientific point of view, the most slender seedling of tuberculosis is potentially as significant as the full grown tree. It is impossible to say with any certainty which tuberculous seed will be cast off and which will mature.

The usual outlook on this great question calls urgently for readjustment. The existing system of medical examination of school children for tuberculosis, however serviceable it may be from the administrative point of view, is entirely misleading as regards the incidence of tuberculosis in children. By admission, the returns have reference to obvious cases of disease and have no ultimate scientific value. It is the much slighter degrees of infection which especially merit study. The natural history of the disease is readily followed in the child. The beginnings of the morbid life history call for minute observation not only for the child's sake but, in the largest sense, for the sake of the nation and the race.

For here, no less than in other ways, the child is the father of the man. It is the seed lightly sown in childhood that for the most part determines the occurrence and course of tuberculosis in later life.

#### THE PROBLEM OF PREVENTION

If the thought be staggering, it is likewise stimulating. For successful implantation of tuberculosis the soil must be in a suitable state and the live seed must be present in sufficient amount for a sufficient length of time. Fortunately the conditions which are most favorable to the healthy vigorous development of the species—indeed the conditions desirable, if life is to be more than existence—are conditions which are unfavorable to the tubercle bacillus.

Why then this almost universal distribution of tuberculosis among the youth of the race? The answer brings us to the bed-rock of physiological truth, and gives the key to the problem of prevention. Recall present procedure in the rearing of children. In a vain endeavor to protect him from harm, the child is clumsily

removed from the beneficent ministrations of nature. The vital atmosphere is replaced by one which is obviously—to the undulled sense—of human provision. Sunlight is obscured by shade of every kind and degree. Nutrition is frequently mismanaged, and natural movement and development impeded by a multiplicity of restraining bands. The process of devitalization, thus inaugurated, is maintained from week to week and month to month. The infant is prepared for successful invasion by infections of all kinds. Continuously in the unwholesome environment, he falls a prey especially to the tubercle bacillus, by whatsoever channel it may be introduced. For unhappily the conditions which are inimical to the life of the child are essentially those favorable to the tubercle bacillus.

The child who has been thus tuberculized is doubly significant, because of what he is and because of what he may become. The tuberculosis of a people begins in the nursery and the school room. It is to the nursery and school room that observation and effort should be directed, if measures for the eradication of tuberculosis are to be fundamentally sound and practically effective.

The problem of tuberculosis in childhood will not be solved by the erection of hospitals or homes for cripples and sick children. These have their immediate, temporary significance. But beneficent as is their purpose, and splendid as their results have been, they do not carry us far enough. The essential question is not, how to tinker up diseased frames. The issues involved are much wider. The problem can only be solved effectively by a better understanding of the physiological needs of developing life and a corresponding renovation of the nurseries and school rooms of the nation.

It is folly to dream of transferring all cases of tuberculosis—whether in the child or the adult—to sanatoria and hospitals. To propose this is to plead ignorance of the essential needs of the problem. The purpose is as unnecessary as it is impossible. The great value of the tuberculosis dispensary lies in this: that it goes to the heart of the problem in the household and meets every issue. While caring for the individual in whatever way may be needful, the dispensary regenerates physiologically, the dwelling, however humble. It makes the home of the poor man become the nursery of healthy children and cease to be the breeding ground of tubercle tainted wasters. Each recreated home is an effective preventorium against tuberculosis.

## HOW MARYLEBONE HAS REDUCED ITS INFANT MORTALITY

BY ERIC PRITCHARD, M.A., M.D. (OXON), M.R.C.P.

London

*Senior Assistant Physician, Queen's Hospital for Children (London); Physician to Out-patients, City of London Hospital for Diseases of the Chest; Honorary Physician for "Infant Consultations," St. Marylebone General Dispensary (London), etc.*

In England, although we fully realize the significance of a falling birth rate, and a continued high mortality among infants, we have so far made no national or concerted effort to mitigate the resulting evils. It is true that we have in the Local Government Board a Central department which exercises a paternal supervision over the individual efforts of Public Health Services in our urban, county and rural districts, but its supervision is, at the best, extremely limited and superficial. The Local Government Board has the power to issue regulations and recommendations, and, of course, it has through its President, who is an important Member of the Cabinet, almost unlimited powers for initiating and controlling legislation. Of these powers, however, the Local Government Board avails itself only to a very limited degree. It has thus come about that efforts to mitigate our high mortality rate among infants has been left to the initiative of private societies, to philanthropic agencies, to the individual efforts of medical officers of health, or to the public health committees whose servants these officers are. It is quite true that, as compared with other European countries, England stands almost preeminent with respect to its infant mortality rate. But that this rate is unnecessarily high is clearly proved by the remarkable and immediate reduction which has been effected in those localities in which concerted and sustained efforts have been made. Our national contribution to the sum total of experiments which have been made by different countries to deal with the great problem of infant mortality is represented not by one systematic and carefully organized plan of campaign, but by a number of isolated and quite distinct experiments, carried out in various centers with varying degrees of success and on completely distinctive lines.

This article represents an account of an individual experiment, which during the last ten years has been in progress right in the heart of London in one of its most thickly populated and active boroughs, i.e., in Marylebone, which has now an estimated population of some 123,000 inhabitants. Although Marylebone has a large

number of very poor inhabitants and a large slum quarter, a considerable part of the district is occupied by shops and large business premises. It also contains a high class residential population, living in large, well constructed private houses and flats, and further, it has the distinction of containing those famous streets and squares where doctors most do congregate. Thus, right in the very center of Marylebone are Harley Street, Wimpole Street, Welbeck Street, Cavendish Square, Portman Square, and Portland Place, all of which are almost exclusively occupied by medical men, possibly a thousand in number and nearly all consultants or medical specialists of some kind or other. In Marylebone, therefore, if anywhere in England, we ought to find in practical operation all the expedients for the preservation of infant life which are known to science, and which Harley Street and Cavendish Square inscribes for the benefit of the world at large in formidable text-books and "tomes" of gigantic proportions. Yet here in this Marylebone of ours, at the very doorstep of Esculapius, in a comparatively well-to-do district, with all the resources of civilization to hand, we had, but twelve years ago, an infant mortality of 190 per thousand births.

There was good reason, therefore, why we should set our house in order, and this I think I may honestly say we have done or are doing, for to-day our infantile mortality rate is in the neighborhood of 100, has been as low as 98, and, if one can judge by passing events, will soon be in the region of 90. How has this feat been accomplished? I cannot afford the time to enter into all the details of sanitary reform introduced into the borough by a succession of distinguished and energetic officers of health, commencing with Dr. Winter Blyth, continuing with Dr. Meredith Young, and now represented in the active personality of Dr. Charles Porter. All of these have effected reforms and all have left the impression of their office on a continuously declining mortality rate. Who can place his finger on the factor which has contributed chiefly to this splendid result? Is it chiefly due to the clearing away of plague centers, insanitary dwellings and the thinning out of areas of congested population? Is it due to improved cleaning, scavenging, watering and paving of the streets? Is it due to closer inspection of tenements, to a more liberal supply of water, or to improved drainage in the houses? Is it due to an improvement in the milk supply and the more careful supervision of dairies? Who shall say? But we all know that each one of these factors has contributed its quota, and a not inappreciable quota, to the result on which we pride ourselves, and all praise to those who have been responsible for these several reforms. It is not, however, with sanitary and municipal matters of this kind—impor-



tant as they undoubtedly are—that I propose to concern myself in this article. The great and important factors in infant mortality are ignorance, and all that poverty brings in its train. Poverty, primarily and directly, I do not hold responsible for nearly as many deaths as ignorance, but poverty secondarily and indirectly is, of course, a mighty factor in the problem. For poverty implies dirt and over-crowding, it often keeps the mother away from the home and compels her to go out to work, and it often leads to drink, thriftlessness and despair. Actual want of food I do not regard as an important factor in infant mortality, infants live and thrive on exceptionally small quantities of milk, whether it be breast milk or cow's milk, but they die in shoals because they are given too much, or because it is given too frequently, or too strong, or otherwise ill-adjusted to their needs. Infants do not die because they have no roof over their heads, they die from asphyxiation, from want of air; they die from too much clothing, not because they shiver in rags. Infants seldom die from cruelty or neglect, they die from too much affection, from too constant feeding, too much clothing—in a word, from ignorance. And it was this ignorance that we set ourselves in Marylebone to dissipate and dispel.

When we began our really serious work in 1906 the infantile death rate was 121. As I have already said, in 1899 it stood at 190. To this level it had been reduced by sanitary reform and by sanitary reform alone. In February of that year (1906), there was convened at the borough's public health offices a public meeting of all those individuals and representatives of public bodies or societies who were interested in questions affecting the public health, sanitation, or infant mortality. And at this meeting, which was very largely attended, a society called "the Borough of St. Marylebone Health Society" was formally inaugurated. The society was composed of representatives of the Public Health Department with the medical officer of health (Dr. Wynter Blyth) as chairman, it included representatives of the Charity Organization Society, of the churches, chapels, dispensaries, hospitals and charitable institutions in the borough. In fact every organization was represented which could in any way promote the objects of the society. The objects of this voluntary society were to act in cooperation with the Public Health Department, and to extend and amplify its work in connection with the prevention of the spread of tuberculosis and the saving of infant life by means of voluntary effort. To inaugurate, in fact, "a system of voluntary service in a municipal setting." To accomplish this object the society set itself to work to organize a service of voluntary workers for the whole district.

Our first work was to find suitable volunteers for this service: these were chiefly recruited from among the wives and daughters of medical men in the neighborhood, many of these recruits bore names that were known and are known wherever knowledge of medical science has penetrated. I suppose that no society of this kind has ever been favored with so talented, energetic, and serious-minded a company of workers as those who were first numbered in the ranks of the St. Marylebone Health Society. Having obtained our recruits we proceeded to drill them, we arranged a very complete series of lectures and demonstrations covering all the subjects that would be useful or necessary for the work. Then we divided the borough into districts and subdistricts, formed independent committees for each, and divided up our workers as economically and impartially as we were able. In our two branches of work, i.e., that concerned with the prevention of consumption, and the saving of infant life, there has been continued and unbroken progress. Our work among consumptives has culminated in a fully equipped tuberculosis dispensary and an open-air school for consumptive children, supported by voluntary contributions, but of this department of our work I do not propose to say more than that it has been a complete success. On the other hand, I have a great deal to say with respect to the second department of our work, i.e., that which is concerned with combating infant mortality. It would take too long to give the chronological history of all our efforts to save infant life. So I propose to describe our system as it operates at the present time and omit the preliminary stages of its evolution and expansion.

Our Public Health Department is notified of all births which occur in the borough, within forty-eight hours of the time of birth. The houses in which these births occur are then visited by members of the staff of paid women sanitary inspectors of whom there are three. These inspectors are highly qualified and fully instructed in all matters that relate to the management of infants, moreover they have been carefully selected for their qualities of tact, and as a matter of fact, they are welcomed wherever they go and are extremely popular among the people. These inspectors talk with the mothers and give them such oral or printed directions as they think necessary. If they see, that the conditions are bad, they make a second call at a short interval, or depute one of the voluntary health workers to visit the case. If the services of the latter are called into requisition, such voluntary health visitor as may be appointed takes over the case and keeps a vigilant eye on the subsequent proceedings. If the case requires medical supervision or in any way proves intractable, the voluntary health visitor refers the infant

to one of the "Infant Consultations" which have been established in the borough; and it is about these Infant Consultations that I wish particularly to speak, for it is in connection with the foundation and organization of these that my own work has chiefly been concerned.

These "Infant Consultations" seem to be somewhat analogous to the milk stations which you have in New York, and of which I have recently read such an excellent account in the Special Report of the Committee for the reduction of infant mortality of the New York Milk Committee (1912). In 1906, when I first thought that our work in Marylebone would be greatly furthered if we could have some central station where infants could be referred for medical advice and treatment, there were no institutions of this kind in England. There were already established a few milk depots, conducted very much after the manner of the so-called "Gouttes de Lait" in France and Belgium, but these institutions never had been a success with us, and they had always proved most expensive. Besides, my idea was to supply very little milk and a great deal of advice, in fact we wanted to encourage breast feeding all we could, and allow these new institutions to act rather as educational centers than as centers for relief.

The establishment of an "Infant Consultation" was, therefore, quite an experiment in England, and in order that it might prove a success I visited some of the best-known institutions in Belgium and on the Continent, and borrowed from them some of their best, or what I conceived to be their best points, and incorporated them with a number of new ideas of my own. All through it has been my aim to conduct my Consultation on lines as scientific as possible, to make it a teaching center for voluntary health workers, and to a certain extent a school for medical men proposing to conduct similar consultations. This latter aim is at present in course of development.

To these ends I have a very complete system of note taking. We record particulars of the family history of the infant, of the past history of the infant itself, of its present condition, and of the advice given. The notes are taken by health visitors, of whom generally some four to six are present. One of the official (salaried) sanitary inspectors also attends at my Consultation and acts as my chief of staff. As this lady has been working at my clinic some five or six years, it may readily be imagined that she is highly experienced in the sort of work required. Two other colleagues of this lady also attend on two other days at consultations, which are held in another district of the borough. To carry out my idea of making my consultation a teaching center, I have all through refused to be restricted to any one system of feeding. I use all methods impartially. I use whole milk, citrated whole milk, carefully home-modified diluted

milk, specially modified milk sold at special dairies, condensed milk and dried milk, and all mothers are taught how to prepare the food at home. I have kept a careful record of the results, and these results will be published in due course; but for the present, although I have made no analysis of the results, I am inclined to believe that the best and most economical method of feeding infants, exclusive of breast feeding, is feeding with a good dried milk. The variety which I have lately used is giving most excellent results, but all the same I believe that the general use of a dried milk is not advisable without some fresh food being given in addition. The danger of infantile scurvy in a mitigated form is a real one. So in all cases in which dried milk is used I issue instructions for orange juice, or some other fresh animal or vegetable juice to be given in addition.

Breast feeding is conducted on the most up-to-date and approved lines. A test feed, that is to say, an estimation of the amount of breast milk taken at a feeding, is made in all cases. And the feeding regulated in accordance. If the breast milk proves insufficient in quantity or weak in quality, supplementary feedings of modified milk, or dried milk, are given in all cases. There is individual attention to each case, and our breast-fed cases do particularly well. By means of supplementary feedings, many cases continue on the breast which might without them be reduced to artificial feeding.

The health visitors always follow up the cases that attend at my Consultation, and by periodical visits to the home see that my instructions are carried out.

Although we get a considerable number of normal cases at the Consultations we see also a large variety of difficult and abnormal cases, which require special treatment; the experience which we all get from these cases is very valuable. The number of cases attending has steadily increased during the six years the Consultations have been in operation, but the demand upon my time has now become so exacting that I have recently availed myself of the assistance of Dr. Janet Lane Claypon, one of the most distinguished of the younger generation of medical women who have taken an interest in preventive work of this sort.

Thanks very largely to the efforts of this latter lady, we have now founded an "Association of Infant Consultations and Schools for Mothers," which constitutes an independent department of the larger society known as the "National League for Physical Education and Improvement."

The new association is very active in promoting Infant Consultations all through the country, and in supervising and unifying their

efforts, for we consider that it is of the utmost importance, from the point of view of statistical results, that there should be uniformity of method in note taking, and definite records of experiments made in methods of feeding or management. It is exceedingly gratifying to me personally, and indeed to all those who have coöperated with me in the same direction, to know that at the present time there are nearly 200 independent centers engaged in the work of holding Infant Consultations, and that constant inquiries are made at headquarters in reference to the establishment of new health societies, schools for mothers, or like institutions whose activities range round the Infant Consultation.

One of the great merits of "Infant Consultations" is that they can be conducted at very little cost. Except in extremely necessitous cases we supply no dried milk, food, or medical necessity without payment. As a matter of fact, my "Consultations," which are a department of a general dispensary, are a small source of revenue to the charity, for we make a small profit on sales, and by the interest which our efforts create we attract subscriptions and donations, which are applied to the general purposes of the dispensary.

In 1907, when we held our first large public meeting at the Portman rooms and distributed prizes to the mothers who had been most successful in carrying out our instructions in bringing up healthy infants, the Duchess of Sutherland, who distributed the awards, remarked that "the cry of the cynics, 'let the weakest go to the wall,' would soon become a very hollow one. Let us hope that this private enterprise in Marylebone would show the State its duty and gradually persuade England to come up in the wake of countries like Sweden and Norway, which, although having a much poorer material to hand, had a happier knack of building up a healthy human race." She congratulated the mothers and expressed the hope that the example set by Marylebone would be followed in a large number of districts throughout the country. That this hope has been realized after the lapse of so few years is indeed most gratifying to all those concerned in the Marylebone movement.

Our work in Marylebone has been chiefly educational. We have educated a large company of expert health visitors, we have educated a small number of medical men and women in the science and requirements of infant feeding, and we have very thoroughly educated nearly 2,000 mothers who have attended regularly at our consultations, and in addition we have given some degree of instruction to every mother who has given birth to a child in Marylebone and who stood in need of such assistance. It is quite astonishing how knowledge of this kind spreads throughout a population. It becomes, as it were, highly



infective. Each one of our well instructed mothers becomes the center of quite a large following of admirers. And just as children teach one another so much quicker than can grown up individuals, so do these women impart their knowledge to other mothers with far more effect than we experts can ever hope to do, no matter what pains we take or how often we repeat the lesson.

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## THE BIRTHRIGHT OF THE BABY

BY HELEN MACMURCHY, M.D., Toronto

We are only beginning to think scientifically of the problem of infant mortality. The scientific significance of lactation and maternal nursing, of birth registration, of infant feeding before and after nine months of age (which is about the time that a change should be made from maternal nursing to another mode of nourishment)—one and all of these have scarcely been considered by the average citizen, or even by the average physician. What medical school gives thorough instruction on these points? Space will allow consideration of but one of these—the first mentioned, and but briefly.

The mammary gland, then, is first of all a gland like any other gland. One would think that it was some unknown and recently discovered structure, if one were to judge by the general ignorance that seems to prevail about it. Its function is no more likely to fail, given the normal necessary physiological stimuli, than the function of the salivary glands, or of the liver. Lactation is established as a part of the drama of birth. The uterus and other organs and accessory structures connected with it are closely and wonderfully linked with the mammary gland, proofs of which are well known to all physiologists and some of which were indeed referred to by the ancient classic writers centuries before modern physiology began. This linking is not by way of a secretion nerve supply, however, but by hormones. The most important of these physiological stimuli is furnished by the baby itself. It is the act of nursing or suckling performed by the baby. The new born baby on arrival knows how to do three things: 1. Its lungs can breathe. 2. Its fingers can grasp, and 3, its lips can close upon the nipple and suck if the nipple is presented and suitably adjusted for it. If the doctor took as much pains to teach the baby to nurse as he does in *asphyxia neonatorum* to teach the baby to breathe, then the reproach of our infant mortality records would be largely taken away. It is time that the Professor of Pediatrics and the Professor of Obstetrics and the Professor of Medical Jurisprudence, and indeed everybody who is responsible for the preparing and licensing of a candidate to practise

medicine, taught clearly that the duty of the doctor to the younger of his two patients in an obstetrical case is not done until he has made sure that the baby is nursing well. As soon as the mother has rested a few hours and the baby has been washed and dressed within six hours, if possible, the baby should be placed at the breast, and the baby should be weighed occasionally before and after nursing to see exactly how much milk that baby has ingested at each feeding. Sometimes it will be found to be half an ounce only. Then something must be done to increase the quantity of the milk. And something always *can* be done. "Never desert a baby," as Sir Thomas Moore has it in his "Utopia." "Every mother is nurse to her own child unless either death or sickness be the lot."

Where the doctor personally and thoroughly manages the establishment of nursing at the right time, and in the right way, I have never known a case where a mother could not nurse her baby. It is now generally held that the activity of the mammary gland is caused by hormones circulating in the blood. It is known that an extract from a uterus undergoing evolution will stimulate the mammary gland, while the reverse is the case with extract of the placenta or of the fetus. But the most important of this group of facts is the time at which the attempt to teach the infant to nurse is made. Within six hours, it is usually easy. Within twenty-four hours, fairly easy. Over twenty-four hours, difficult. Over forty-eight hours, more difficult. So it comes about that the fate of the baby is often sealed before it is one day old. For the deaths of thousands and thousands of babies are due to this one simple fact. They were not mother nursed.

Finally, the outlook is hopeful. All we have to do is to put our shoulder to the wheel. If we displayed half the energy and used half the money freely spent by our friends the manufacturers of the "Ideal Infant's Food" the thing would be done. When the mother and father once get firmly into their heads the true idea of maternal nursing, then we shall have a great and permanent improvement in our present sad showing as to infant mortality.

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### INHERITANCE IN EUGENICS

By J. GEORGE ADAMI, M.A., M.D., Camb.; M.R.C.S., England;  
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*Professor of Pathology, McGill University, Montreal. Pathologist in  
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In an address upon inheritance in eugenics delivered before the Canadian Medical Association at Edmonton, August 13, 1912, Pro-

fessor Adami, of Montreal, had the following to say in regard to preventative measures against venereal diseases:

"I have told you that only that is regarded as inherited which has the property of the parental germ plasm prior to fertilization, or is due to the interaction of the germ plasm of the two parents in the act of fertilization. Every other condition which acts upon the growing individual after the moment that the individual life is begun is acquired. You will see thus that inheritance of disease is far from being everything. There is from the point of view of eugenics another equally important section of my subject. I have only so far discussed true inheritance, conditions in which disturbances impressed upon the germ cells before fertilization affect the offspring. I must at least glance at the serious effects of congenital disease, and more particularly of infections conveyed to the growing individual while in the womb or during parturition. With a fuller realization of the frequency of these congenital diseases, of the havoc these are playing upon individual lives, the misery, ill health and ruin that they inflict, with the surer recognition of the presence and after effects of what euphemistically we speak of as the contagious diseases, brought about by more exact methods of diagnosis, such as the Wassermann reaction and the actual recognition under the microscope of the gonococcus and the spirocheta pallida, we have during the last decade more especially come to a realization of the hideous frequency of these diseases and their ill effects upon the innocent of the second generation. When it is accepted that at least half of gynecological practice is due to gonorrhea and its results, that a large proportion of the cases of infantile blindness is of gonorrheal origin, that as demonstrated by the Wassermann test, practically all cases of locomotor ataxia, and nearly all cases of general paralysis of the insane are of syphilitic origin: when we know that most cases of multiple successive abortions are syphilitic, and recognize the puny, miserable parodies of humanity doomed in most instances to an early death, that too often are the result of syphilitic disease in the parent: when we realize the preventable ills that follow in the train of these venereal diseases, I wholly agree that the time has come when we should no longer refer to these matters by circumlocutions but for the good of the coming generations we should openly wage war against gonorrhea and syphilis and above all should, for the safety and welfare of our children, instruct them as to the dangers they must ward against—not merely on account of their own health and happiness, but for the sake of the generations yet unborn.

At the Dominion Day Dinner in London the other day, after

listening to Mr. Foster's magnificent oration, the agent general for Australia, strong at heart in the knowledge of what the Commonwealth was accomplishing in the matter of Imperial Defence, said dryly that if it depended only upon Canadian talk then surely the safety of the empire was assured: there would be Dreadnoughts to spare. We have to confess humbly that in more than one matter while we are talking, Australia has been doing. Melbourne has led the world in a census upon the extent of syphilitic infection in her midst. At the meeting of the Australian Medical Congress two years ago a resolution was passed to the effect that syphilis is responsible for an enormous amount of damage to mankind, and that all preventative and remedial measures against it are worthy of the utmost consideration. This resolution was presented to the Government of Victoria accompanied by the statement that there was a sharp difference of medical opinions respecting the extent and distribution of the disease. Acting under the advice of its chief health officer, Dr. Ham, the government sanctioned a collective investigation with the aid of the medical profession in Melbourne. The government thereupon appointed an expert, Dr. Conrad Hiller, to make the official tests: syphilis was made a compulsory but impersonal notifiable disease for a period of twelve months within the Melbourne area: medical men were instructed to report cases and send a specimen of the blood to be examined by Dr. Hiller. Certain suspicious conditions, like thoracic aneurysm, multiple abortion, death of three children in a family under five years of age were also to be notified. In all 5,500 cases were reported during the twelve months. For four months at the end of the period all the cases visiting two of the hospital clinics (eye, ear, nose and throat cases) were tested. The results showed that out of a hospital population of 550, at least 13 per cent. were syphilitic. The hospital population was superior to most hospital populations, the majority presenting themselves for minor ailments having nothing to do with syphilis. What is more, Dr. Barrett, who studied the eye cases, lays down as the result of this routine testing, that it was striking how the syphilitic taint was responsible for bad after results in operation upon the eye, for lowered vitality and liability to secondary infection. If a cataract or other operation failed to heal, but became infected, he almost constantly found that the patient gave a positive Wassermann test, or a history of previous syphilis: Thirteen per cent—one in every eight persons. Have we any right to suppose that Edmonton, Calgary, Vancouver, Winnipeg, Toronto, or Montreal are in this respect any better than Melbourne? Perhaps Toronto, though I have my doubts. Surely with the knowledge that we now possess—

if only with the knowledge that we as a profession possess of the means of remedy—the time has come for us to unite in eradicating from our midst a scourge which brings in its train such hideous after effects.

In support of my plea let me say that New York is already dealing with the matter. Upon May 1st of this year, the board of health of that city—a body which has led the municipal antituberculosis campaign on this continent—put into effect a well thought out scheme along similar lines, whereby the officers in charge of all public institutions of the nation, of hospitals and corrective institutions, are required to report promptly all cases of venereal diseases and all physicians are requested to afford like information regarding private patients under their care, excepting that the name and address of the patient need not be reported. All information so obtained is to be treated as absolutely confidential and not to be accessible to the public. The Department of Public Health is prepared to make free bacteriological examination and diagnosis of material submitted when the data required for registration are furnished and provides and distributes circulars of information in relation to these diseases.

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#### PRESIDENTIAL ADDRESS\*

BY CHAS. A. HODGETTS, M.D., C.M., L.R.C.P.,  
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The pages of history are writ large with lessons of how empire after empire has fallen through physical degeneration and all its attendant evils, consequent upon the ignoring of laws which are to-day called the simple laws of health. The only difference between the people of earlier times and ourselves is, that they knew not these laws and, therefore, heeded them not; while we of to-day know but do not observe them. Upon every hand there is the evidence that we are in many respects following in their footsteps, and, as a proof of this, it is not necessary for us to go to the older portions of this Empire. It is to be found in the most recently settled portions of Canada, while physical defects and their attend-

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ant social evils are in evidence in the rising generation even of this proud city in which we meet to-day. In simple words we are not observing the laws of hygiene and posterity will have to suffer the consequences.

Fortunate it is that, during the past three quarters of a century, there has gradually evolved from the science of medicine the science of hygiene; the former has been mainly curative of disease, while the latter has for its highest object the prevention of disease, the prolongation of life, the putting off of death until the last possible moment, thus perfecting man's environment, so that his powers of vital resistance may not be weakened by the inroads of disease reducing organisms.

In the evolution of the science of hygiene the thoughts and minds of the members of the medical profession have been directed more and more to the prevention of sickness; indeed, the trend of modern medical practice has ever been in the direction of minimizing man's danger against his great unseen foe—disease.

But, while studying the cause and effect, and endeavoring to find the remedy, there has always been the urgent necessity for the physician to render succor and aid to alleviate man's suffering. Therefore, in the popular mind every physician is considered a sanitarian. The sooner the public become educated to the fact that curative medicine and preventive medicine or hygiene are not the same, the better for the progress of public health.

It may as well be clearly understood that, so far as the licensing body in the Province of Ontario is concerned, the College of Physicians and Surgeons (that august body) does not deem it essential that a student at his final examination be required to show any evidence of a knowledge of hygiene, which to-day is the most important branch of medicine. It is difficult to understand the devious ways of this peculiar body. From their action, however, it is clearly evident that they have not risen to a realization of the fact that the primary object of the practice of medicine is to prevent disease rather than to cure sickness.

The paths leading from Hippocrates to Jenner were dark and the ways were devious, but great is the army of Æsculapians who have added each their quota to the solution of the problem of how to prevent disease, and, as a result of their united contributions, we can point with pride to victories achieved, all of which have prolonged life and benefited mankind generally.

In order rightly to comprehend the present and intelligently anticipate the future of "state medicine" it is necessary to briefly review the past and thus learn of the evolution of public health matters generally.

From earliest times the maintenance of the health has ever been the subject of man's care. Indeed, we may go further and say that in the Mosaic code there is evidence of the fact that man believed it to be the wish of the Almighty that he should preserve his body in health, for in that law are given minute directions for the cleanliness of the person, the purifying of houses, the exclusion of those suffering from contagious diseases and the care to be exercised in the selection of food. These and many other health questions were made a matter of religion and are considered as such by the orthodox Jew of to-day.

Subsequently, the Greeks and Romans, with a view to the improvement of their bodily condition, devoted themselves to physical culture. The Romans understood better than we do on this continent to-day the necessity for pure water supplies for their cities and the value of sewers and the proper disposal of sewage. Indeed, the Roman statesmen were the first to appoint district officers of health, assigning them according to population and charging them with duties which were chiefly those of public health.

With the advent of so-called Christianity, the Rabbinical laws were ignored, as apparently was the injunction of St. Paul—"Know ye not that ye are the temples of the Holy Ghost"—and we find the monks and friars devoting themselves to acts of mercy and charity by instituting hospitals for the care of the sick, but failing to impress upon the people the necessity for a proper care of the person and the observance of even the most rudimentary of health laws whereby their environment could be bettered. Disease came to be regarded as a fetish, while epidemics were but manifestations of the wrath of a Divine Being. This attitude of mind was one that parallels that which obtained in the days of savagery—and it might here be added that there is more than sufficient evidence to show that, even in what are considered intelligent quarters, a similar superstition prevails to-day. I have even heard mutterings of it in the legislative halls of Canada, and, unfortunately, the public press is not free from suspicion.

In Great Britain in mediaeval times, conditions were no better, and the general insanitary state of London is well known. At the time of the first outbreak of cholera, 1831-2, the state of sanitary conditions was deplorable, and, notwithstanding the terrible effects of this scourge, it was not until the passing of the Public Health Act of 1858 and the establishment of a Public Health Department with Dr. Simon as first medical officer, that material progress was made in that country. This enactment was brought about by the earnest work of a devoted band of men and women under the

leadership of Sir. Edwin Chadwick. Eight years later, in 1866, a still further advance was made by the passing of the Sanitary or Public Health Act. It was not, however, until 1872 that the law made it compulsory for municipal authorities to appoint a medical officer of health; although Liverpool had appointed one in 1847, just a quarter of a century earlier, and the metropolis of London had followed in 1855. In this year (1872) the counties were divided into rural and urban districts. Hitherto there had been in the main only parish districts. In 1888, sixteen years later, county councils were authorized to appoint county officers of health, the act being made obligatory twenty one years later with the introduction of the Housing and Town Planning Act.

While not wishing in any way to detract from the studies made in the realm of preventive medicine by foreign workers, it is not making too strong a claim to say that the most practical public health work has been done in Great Britain by men who were confronted with problems of disease consequent upon the rapid industrial development of that country. Suddenly, as it were, the environment of the people was changed from that of rural life to one attended with all the evils incident to and consequent upon a rapid and chaotic growth of towns and cities. The opportunities for study and research were many, but the methods whereby opinions were formed and conclusions reached were along lines the most difficult, and it was not until the chemist Pasteur led the way into the realm of microscopic plant life and the surgeon Lister worked on the intricacies of how to destroy these minute and unseen enemies of mankind, that the greatest progress was made in the realm of hygiene.

It will certainly be acknowledged that, considering the great importance of the subject of public health, covering as it does the individual and his environment, the center of Empire has moved slowly though progressively forward during the last half century. Yet notwithstanding the progress made we find evidence of the inefficiency of the laws to adequately meet the requirements of Great Britain at the time of its greatest danger. This was demonstrated at a time when physical fitness of the highest degree was required by the government to meet the demands of war. The Director General of the Medical Services in reporting on Physical fitness of men offering themselves for enlistment at that time showed that 77 per cent of the estimated population were urban residents and about 25 per cent of those, some six million, were unable to rear their children under conditions favorable to health and physical fitness.

In referring to this deterioration, an eminent English authority says there is

"no escape from the conclusion that the proportion of lads and youths physically unfit is alarming,"

and he adds, evidently viewing the subject from its most important standpoint:

"If this be true of the lads, is there any ground for hoping that the physical condition of their sisters is better? They are exposed to exactly the same injurious conditions, often in an aggravated form and there can be no doubt that their physical development suffers to at least an equal extent."

And he continues:

"We need women to be healthy mothers of robust children."

This brief reference applies to but one aspect of health conditions in great Britain, but as environment is just what health laws, imperfectly applied by reason of local exigencies, make it, we can roughly estimate the results achieved in that part of the Empire where the government has no competent central health bureau or department vested with power to enforce what is right and proper in the interests of the people.

It is only fair and proper to say that where the local machinery is the best, the results achieved are the best, but as a chain is no stronger than the strength of its weakest link, so it is with the national question of health. In these days of migration and rapid communication it becomes essential, yes imperative, in the interest of the nation, that public health administration should become centralized by a wise and proper combination of existing authorities, the central or federal authority maintaining the highest degree of efficiency by supervision and by a directing and coördinating influence of the provincial authorities.

Canada has entered upon the race for national existence, a link in the chain of those nations which compose the greatest earth girdling composite Empire which has ever been known. Each portion of this great Empire is to-day laying the foundations of the Greater Britain in order to ensure its perpetuity, and to this end the attention of governments and of the people themselves is being directed to many of the important factors entering into this, to us, great empire building problem of the twentieth century. For instance, we are considering from an imperial point of view such problems as those of commerce, tariffs, and particularly the two great preventives of that international disease commonly known as "war" but more accurately described as "hell." I refer to the navy and the army, for which we are willing to tax ourselves, some in one

way, some in another, and all for the sake of maintaining imperial peace and unity. But with all this bluster and fuss, with all this very unnecessary display of patriotism and imperialism, what are any of the governments which are fussing and fuming in an endeavor to weld this chain of Empire together doing in a systematic manner for that prime essential of Empire—the people themselves and their physical environment.

Important and essential as are all the subjects under consideration, and difficult as many of them are of solution, the one which is the *raison d'être* of them all—the one for early and constant study—the one most difficult of all to handle has never as yet been considered.

That it has not been lost sight of by some of the leading minds in imperialistic matters is quite evidenced by the public utterances of Lord Rosebery and Rt. Hon. Joseph Chamberlain. Lord Rosebery has cautioned Britain that an empire in itself is of "but very little use without an Imperial race"; and Chamberlain, referring to the fact that the work of this century is the consolidation of our Empire, has asserted very positively that public health is the greatest of all the subjects to be considered and worked out. Being seized with the immensity of the issue at stake, he asks:

"How are we to fulfil the task which Providence has laid upon our shoulders, a greater task than has ever been imposed upon any nation, a task which we are now fulfilling not without success, but the greatness of which may fill even the boldest of us with some anxiety?"

It is to a consideration of how Canada can do its share in this, the greatest task of Empire, the perpetuating of an Imperial race, that the subject of public health is presented to this association which represents the health interests of the Dominion of Canada. I do not imply that the problems I have mentioned are capable of immediate or even early solution, but simply that in the excitement and enthusiasm over the grosser and materialistic and, I might add, the political aspects of life, we should not forget the essential.

From what has been said it will be seen that the history of public health in Canada is, in the main, but a repetition of the progress of the work in Great Britain. We have followed like sheep—though a long way off—instead of profiting by their errors, we have not enacted legislation for preventing what we know by their experience can be prevented. The reason for this is not difficult to find: our people are ignorant of health laws; our municipal councillors, as a rule, live for no higher object than to maintain their civic office by voting along those lines which will secure the greatest return of votes; in short, our politicians are not statesmen. Indeed, a



statesman is now a *rara avis*, for our legislators have no more brains or judgment beyond the referendum, which is simply the *cloaca maxima* into which too often the recommendations of a statesman are precipitated by the politician who plays on the ignorance of the average citizen to accomplish his nefarious ends.

We have before us the evidence that bad town planning and housing lead inevitably to increased municipal expenditure and, therefore, higher taxes. We know that under inefficient legislation, bad housing conditions grow up and continue and that, owing to these evil environments, disease, crime, immorality and poverty resulting in physical degeneration inevitably result. Yet here we are planning towns by the hundred each year, building, rather I should say throwing together houses, and, worse than all, permitting a foreign element to live in worse conditions than would be permitted in their own country, and there is no legislature in Canada which has a statesman within its walls of the caliber to propose a bill which will (in my judgment) adequately meet this alarming and awful situation.

Sufficient has been indicated to show that, as a nation, Canada has a long way to travel yet before the claim can be advanced that it is doing its share to produce a virile race leaving alone the still more important question of maintaining its virility.

Some of our provinces have good health laws. In a few instances the central provincial authority maintains a strong grip on municipal authorities and rightly so; for of all the opponents of even the most simple health laws I can state that municipal councils are the most prominent. They require, in many instances, the display by the central authority of the strong hand, although not necessarily its use. It is in the highest degree essential that health laws should be brought into harmony as well as the laws relating to the collection and tabulating of vital statistics. Each provincial health bureau or department must be efficiently equipped with expert officers at the head of each of the many subdivisions of public health work. These include sanitarians, epidemiologists, bacteriologists, chemists, sanitary engineers, lawyers and architects. The **laboratories and plants of each provincial branch of public health service** must be fitted out and maintained and operated in such a manner as not only to carry on routine work, but to assist in experimental and research work. Both of these are essential to the maintenance of the highest standards of hygiene. This has been very clearly stated by an eminent lay writer upon the subject of state organization. He says:

"It should be a part of the organization of a civilized state to have a

public health service of well paid, highly educated men distributed over the country and closely correlated with public research departments, and a reserve of specialists, who would be ready and eager to face dangers and to sacrifice themselves for honour and social necessity as are soldiers and sailors.

Have any of our provinces attained to this degree of proficiency as yet? Some are moving toward it, while others again are not even with the main body but are, sad to say, trailing along in the rear.

But, from what has already been said, you will see that I consider health is not only a matter for municipal and provincial consideration and action, but that it should also be dealt with by each national government. We in Canada have much to gain by a study of the health laws and organization of the German Empire, for although the situation is not the same there as here, yet it is parallel to it. Prior to 1867 the German Empire did not exist, but, owing to political exigencies, it was brought out of chaos a national unit. The national department of health of the Empire coöperating with and coördinating the work of each of the several states composing the nation.

In Japan on the other hand we have a striking example of the national government relegating to itself the control and direction of health matters appertaining to the people generally. The laws of this country are models and are well worthy of careful study by our federal government. The reasons why a national government should give attention—direct attention—to public health under a bureau in which would be considered all matters relating to the life and well being of the people, is that of all departments of national life none more urgently requires the widest possible field of study and action than that of public health. Health depends on the relation of the human frame to its environment, animate and inanimate. It is essential to discover the limits of this relationship before we can understand the cause of its disturbance. The study of health and disease, therefore, must extend to the whole animal and vegetable kingdoms, and this work can be more efficiently and economically done by a national government which has at its command resources which are not possible to a province or state. It can also, by reason of its central power or authority, serve to coördinate and, at the same time, coöperate with the several provincial authorities.

We have problems to study and solve which are big with import to the people of this nation. Only one will be referred to at this time, and that is the influence which the foreign population will have upon the race. We have been receiving on our shores a large number of emigrants from Europe. For some time these people came almost without let or hindrance. Then the federal govern-

ment took a step forward and instituted what is commonly known as the medical inspection of immigrants. How far it answers the requirements of an adequate medical inspection need not here be stated, but if the people of this country, if the provincial governments of this Dominion, are satisfied with a medical examination of several hundred persons often speaking a foreign language which is conducted in a few hours by one or two medical men, then all that can be said, is that they are facing a danger which I believe will show itself in the near future if it is not already manifesting itself. It must be remembered that the nation is like an insurance company: it accepts as a risk the life of each man, woman and child passed as fit at the port of entry. This question is one which is worthy of more immediate direct attention by the governments of Canada than may at first seem apparent. We want men and women, but they should now be "hand picked" rather than "screened" than is at present the case.

This matter in itself is sufficient argument for the establishment of a federal bureau of health whereby all branches of public health would be coördinated.

The recommendation of the President of the United States, when urging upon the members of Congress for the second time the creation of a federal department of health in that country, was to this effect:

"In my message of last year I recommended the creation of a bureau of health, in which should be embraced all those government agencies outside of the War and Navy Departments which are now directed toward the preservation of public health or exercise functions germane to that subject. I renew the recommendation."

This country, the United States, is already in possession of a well equipped public health laboratory operated by the Public Health and Marine Hospital Service with its staff of well trained officers, and, in this respect, is far ahead of Great Britain, which, in fact, has no national service in any way approaching it either in work or in results. Prior to 1902 the laboratory had been devoted almost entirely to research in pathology and bacteriology. Its work was, however, extended in that year to medical zoology, pharmacology and chemistry. Its facilities have since been extended to sanitary officers on the request of state health authorities; the making of public health investigations by the staff and the supervision of viruses, serums and toxins and the issuance of most important sanitary bulletins. We have in this branch of the Federal service of the United States an example which should be followed and improved upon in each of the nations of this great empire.

While each nation within the Empire is engaged in the setting in order of this important branch of governmental service, there remains yet to be gradually evolved a scheme for the coördination of the same upon Imperial lines, some scheme whereby an intelligent conspectus of the whole problem can be made. The opportunities, the unusual advantages, afforded by this great Empire for the study of disease under the ever changing conditions of climate, race and environment, are unique. Never before in the world's history has such opportunity been offered; and the responsibility for action rests heavily upon us to-day, for, unless we do act, the fabric of Imperialism is but an empty myth. Disraeli correctly said, sanitary reform is the foundation for every other national reform—and in the earnest endeavor which is manifesting itself in every nation of this composite empire for a strengthening and unifying of the essential elements of the good government sought for, it is necessary that each nation should not neglect that which is paramount, that which will advance the highest and best interests of Imperial citizenship. As the healthy body, like the mathematical whole, is equal to the sum of all its parts, and the health of the whole can only derive from and depend on these, so it is with the units composing this Empire. The course of the Empire's life is decided by the weakest portion of that chain. The call then is to the people of Canada, the municipalities of Canada, the governments of Canada, to see to it that, by the coördination of all health forces in one homogeneous organism and by the adoption and enforcement of the most advanced health measures, this Dominion fulfils its duty in the providing of men and women physically fit to enable us to hold our own in that chain of nations, so that, in the commercial struggle, which is not likely to become less strenuous as years pass by, this Empire shall ever hold its own and fulfil the destiny for which it was intended.

The part to be played by each member of this national health association is not an unimportant one. It must be our constant aim to educate public opinion, to foster the spread of hygienic knowledge to the boys and girls of this country, for, though the children of to-day, they will be the men and women of to-morrow, and it is through them that national and imperial success will come. If we are but earnest, active and true, we can content ourselves that our work is good, and big with far reaching results in adding to the sum of human happiness and the comfort of mankind. To the most humble in the field of hygiene as well as to those most prominently engaged in the work, I would say: "Remember that it is your high privilege to prevent disease, to diminish and, as far as possible, ban-

ish sickness and suffering, to reduce mortality and prolong life, and that in so doing you are rendering to the Empire a public service and strengthening the foundations upon which its perpetuity depends."

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### MEDICAL INSPECTION OF SCHOOLS\*

BY ZATAE L. STRAW, A.M., M.D., Manchester, N. H.

Now as never before has it entered into our province to point the way to the secret of obtaining that purity and majesty of the body which is its right by divine inheritance.

Into this province a little child has led us, and the world smiles approval, while we seek to strengthen it for the burdens and duties of its future life. For this is the era of the child, the day of common things; the time of clearer vision for the nearby and plainer truths, while for a time we give up the search for those that are hidden. The welfare of the child: this is the shibboleth which is firing the enthusiasm of thousands of the truest and best of the world's benefactors to-day, and to the promotion of which much of the vast machinery controlled by humanitarian and sociological organizations is directed.

In this movement we ought to have a share—as a profession—as a state. As a profession, because one of the most important departments, that of Medical Inspection of Schools, is directly connected with it. As a State, because it depends largely for success upon wise legislation, and it is not to be believed our State will become a laggard in beneficent and uplifting projects.

Of all the great problems in Medicine, none exceed in importance those embodied in what, for convenience, we call "Preventive Medicine." These problems touch upon sanitary and hygienic science with their cognate agencies—the supervision of the individual in his immediate environment,—the control and direction of infant life, and to some extent, the safeguarding of the community at large. From consideration of these notably difficult problems, separately or in combination, has arisen the movement, revolutionary in its scope, which seeks to repair the negligence of the past, by better methods and knowledge of the present. Out of this endeavor has grown a new specialization, the system of Medical Inspection of Schools, which assumes the care and supervision of the child during the tedious and critical process of education.

We have come to know that in order to attain to anything ap-

\*Read before New Hampshire Medical Society.



proaching the ideal in educational lines, we must have a dual interest in the child; that it is futile, even criminal to stimulate the mental without thought for or even at the expense of the physical. That the physical health and energy must be conserved, nourished and developed equally with the mental if we hope for a uniform and well-balanced result.

Basing their convictions upon these facts, thinkers in all departments of scientific and educational works began seriously to take thought how to obtain best possible conditions physically and mentally for the use of the present generation.

Naturally and inevitably they arrived at the conclusion that only the common ground of Medical Inspection of Schools, where medical science can join hands with educational science, could the desired end be attained.

The benefits of this union of the two greatest needs of the human race at once became apparent.

Parents, teachers, the general public, as well as the children massed in the schools, and relatively those in workshops and other fields of labor, shared in the resultant activities, widening and enlarging to take in all conditions of life.

Certain changes in the constitution of society have also aided in the coalescing of these two forces.

A century ago, we were a set of rural communities, the urban population at that time constituting 3.3 per cent of the total population.

Now we are an urban nation; 35 per cent live in cities, especially in the old and more advanced States. This moving of the population has rendered essential greater attention to water supply, problems of light and air in dwellings, public institutions, the isolation of contagious diseases, and a thousand other matters of greater or less importance, but less needed in a rural community. I would not be understood, however, as making this statement too sweeping, as it has been found in the prosecution of Medical Inspection work that in rural schools the demand is almost equal to that of city schools.

One in three will have trouble with the eyes, nearly one in five will be mouth breathers, because of large tonsils or adenoid growths; frequent cases of nervous trouble, chorea or even epilepsy; and a certain number be predisposed to tuberculosis. Great changes are taking place in our racial stock. The influx of vast numbers of immigrants, many of them coming from the lowest conditions of peasantry and serfdom, with habits of living quite

different from our own, even among our poorest classes, bring with it immense responsibilities upon educators and the medical fraternity alike.

That this is an item of considerable importance may be seen by the returns of the last Census, though it would probably not be true of the country at large. Boston has a foreign parentage of 71.6 per cent; Chicago, 77.2 per cent; Cleveland, 75.4 per cent; Milwaukee, 82.7 per cent; New York, 76.6 per cent; San Francisco, 70.4 per cent.

No other agency except an efficient and authoritative board of control, combining the functions of the two, could safely direct these antagonistic elements. Additional reason for effective medical supervision is found in the extension of our school system. In former years, the schools were widely scattered, and irregularly attended, the terms were short, and there seemed no special need of hygienic attention.

Now that legislative action compels regular attendance and makes the term to last practically throughout the year, a different state of things has been brought about.

The commingling of children from all families and conditions for long periods largely increases the danger of contagious and filth diseases and renders their management more difficult. If the public schools are to continue to be schools for all the children, they must be kept morally and physically clean and safe. And just here I would call your attention to the responsibility of the State in this matter.

If the State has by the enactment of laws compelling the attendance at school provided for the education of the child, not merely for the child's sake, but as a measure of self-protection, it is also bound to take cognizance of its physical welfare for the same reason. One can go further; the State is responsible not only for the sound body, so far as it can supply the needs for its development, but for the sane mind as well. The subject is too far reaching for the limits of an original Medical Journal article, but picture if you can the defective and discouraged child drifting into hopelessness and despair, because the State as its legitimate guardian and protector, overlooks and neglects its needs.

Says Dr. William H. Allen, Secretary of the Bureau of Municipal Research, "The obligation between the State and the child is a reciprocal one, and when the State for its own protection compels a child to go to school, it pledges itself, not to injure itself, by injuring the child."

Permit me in this connection to quote from the proceedings of

the British Board of Education: "Medical Inspection is founded on the close connection which exists between the physical and mental conditions of the children, and the whole process of education. It seeks to secure ultimately, for every child, normal or defective, conditions of life compatible with that full and effective development of its organic functions, its special senses and its mental powers, which constitute a true education."

The following is a summary of facts regarding this phase of the subject:

1. The school is the only governmental department that directly assumes control of children's lives.
2. At least 9 out of every 10 of all American children are subject to this control.
3. Such control is maintained for the most part during the critical years from 7 to 14.

Let us now look briefly at the actual work accomplished through this agency according to accredited and carefully tabulated results.

It has been supposed by many that medical inspection is still in the experimental stage, and that America is among the first to adopt it; this is far from being the case.

With Brussels having a systematic inspection since 1874, Paris since 1884; with scientific journals in both Germany and France devoted exclusively to this subject, and the movement a national one in France, England, Belgium, Bulgaria, Switzerland, Russia, Japan, and the Argentine Republic, it is evident that save in detail, the matter is a settled one, and that America is one of the last of the civilized countries to seriously consider it.

However, we have now gone to work, and with characteristic energy are drilling our forces and adopting methods excelling many of those older in the work.

Twelve States have taken legislative action, either compulsory or permissive.

Of these the best progress has been made in the North Atlantic and Western division of States, where about 60 per cent of the cities have taken it up. It has made substantially equal progress in the two Southern divisions, where the percentages are 37 and 38 (these divisions were made for the purpose of tabulating results).

The poorest showing is made by the North Central division, where only 20 per cent of the cities have Medical Inspection.

Of 758 cities, 337 have systems of Medical Inspection.

In 75 per cent of the cities, work is prosecuted under the Board of Education.

301 cities have inspection for the detection of contagious diseases.

167 cities have physical examinations of school children, most of them not only when they first enter, but at stated periods.

In 189 cities vision and hearing tests are conducted by the doctor.

In 399 cities vision and hearing tests are conducted by the teachers. 1,194 school physicians are employed as permanent members of educational forces.

371 nurses are employed in 76 cities.

48 cities have school dentists.

Last year, 1911, 23 American cities were supporting open air schools.

No failure has yet been recorded. One half pound per week brings an average gain in weight of the pupils attending open air schools, in which they work less, play more, and progress faster than those in the ordinary schools.

The open air school is an outgrowth of the work for better medical supervision of the children, especially such as from any cause are interrupted or retarded.

The following is a partial list of concise, tabulated questions indicative of the extent and purpose of the work, and is part of an exhibit of legislation and work for the physical welfare of the children held in N. E. A. Headquarters.

1. Who and what should be physically examined? Ans. All children, normal students, teachers, janitors, buildings, grounds in all school districts, public, parochial, private, rural and urban.

2. How often? Ans. At least once per year.

3. How many children need treatment? Ans. 7 out of 10; 3 out of 10 for eyes; 2 out of 10 for breathing troubles; 7 out of 10 for bad teeth.

4. What is the penalty for physical defect? Ans. Retardation, discouragement, dropping out, annual waste of money estimated by Leonard P. Ayers at \$27,000,000.

5. Does examination lead to treatment? Ans. Yes, in 9 out of 10 cases if the parents understand properly.

6. What is the most inclusive compulsory law? Ans. That for Indianapolis.

7. What State has printed best instructions? Ans. Probably Massachusetts, but Louisiana has the best Sanitary Code.

Children found predisposed to tuberculosis, or already infected with it, are sought out and given special care or instruction by 97 cities.

For these, out of door schools and other means for improvement are provided.

New York City will this year (1912) make over and equip, twenty school rooms in regular buildings for the better care of the sick and well, besides establish a number of independent schools for out of door instruction.

Three or four years ago, Medical Inspection meant a hurried looking over of school children to discover measles, scarlet fever, diphtheria, etc. Now 23 cities look more for defective vision than for transmissible diseases.

Three years ago, adenoid growths were almost unheard of by school teachers; to-day in 171 cities adenoids, hypertrophied tonsils and breathing defects are known to be a more serious menace to a healthy development and school progress than the easily detected contagious diseases of which people are more afraid.

With this view, Chicago's board of education has a special division of Child Study for examining all children whose defects are deeper seated than those mentioned. Both Chicago and Philadelphia have a private pathological clinic for children which takes up nervous difficulties and backwardness that may be due to either hereditary troubles or deep seated defects. You might ask what do these activities prove as actual gain to the State, or to the individual, except from the humane or charitable points of view?

Taking school records as the most exact and accessible source of information, we find that last June (1911) an army of 250,000 boys and girls marched from the city public schools of America, proudly bearing the evidence of having completed successfully the prescribed eight years of study. During that month and the month preceding, there dropped from the ranks another army of 250,000 children, who had failed of graduation, having completed only six or less years of study.

What caused this lapse in the educational course of these prospective citizens, workers in the marts of industry in all departments, involving so tremendous a loss to the State and to the individual? Approximately 16 per cent of all who drop out do so because of ill health. Those having removable physical defects make 9 per cent slower progress through school than the children who are not so handicapped.

Take a child who is somewhat deaf; it fails and has to repeat its grade, losing time and place, and, lacking a certain *esprit du corps* due to this loss of rank, he gives up then or when he reaches his fourteenth year, reasoning that he cannot hope to graduate at the usual age.

The Medical Inspector will detect these cases before they have failed, and by the "follow up" system, providing suitable remedial



treatment and possibly more hygienic environment in the home or school will thus enable the child to continue its course as well as invigorate its health.

It is wasteful to the State and inhuman to the child to curtail its opportunities for future usefulness.

Has it ever occurred to the Solons at our State Capitals what retardations alone cost, quite outside of self depreciation engendered by the realization of its unfitness for the race of life?

The "repeaters" (children arrested for minor offenses) as given by Leonard P. Ayers, are estimated to cost \$27,000,000; and this necessarily leaves out of the count the ultimate effect upon the mentality of the child, of the moral degeneracy often ending in vice and crime that so frequently overtakes the victim of enforced idleness or uncongenial occupation.

These are grave problems, not to be shifted out of sight because of parsimony, prejudice or ignorance.

The methods pursued where Medical Inspection exists vary greatly.

This is necessarily the case, particularly in America, as the same law might not be equally practicable in different localities, owing to climate, racial, industrial, legislative and other varying conditions.

In the different cities they have various forms of blanks, weekly, monthly and term reports, to be made out, giving number of pupils examined and the various defects found, the number of exclusions, and subsequent return of excluded pupils.

Where no satisfactory evidence of vaccination is apparent, the only evidence being a distinct characteristic mark, a prompt compliance with the law is insisted upon.

A schedule of duties is usually prescribed, designating number and time of school visits, manner and amount of service and when special attention should be given.

This includes the teacher's part, and to some extent that of parent, and of the general school authorities.

In most places it is the physician's duty merely to report the case to the parents, giving cause for exclusion and suggesting consultation with their family physician, no treatment being suggested except in cases of pediculosis, when directions may be given by the inspector.

Where the case comes under the jurisdiction of the Health authorities, the inspector's responsibility ends with the proper notification of the Board of Health.

There are two standard types of administration, that under the Board of Health, and that under the Board of Education.

In the beginning of the work, practically all the systems were administered by local Boards of Health, but now only about one fourth of the cities are under the Health authorities, while in the remaining three quarters the board of Education is the controlling body. In most places the tests for defective hearing and seeing are conducted by the school physicians, but in others the teachers themselves do this work, a practice which works injustice both ways. It adds to the teacher's already overburdensome responsibilities, and it may result in injury to the child, since tests to be of any real value require technical skill.

In many of the larger cities school nurses are employed to supplement the work of the physician, and has been found a most excellent expedient.

The qualified nurse is sometimes required to visit the homes of the pupils and inspect the surroundings, and if found unhygienic or in any way menacing to the child to report to the proper authorities. Dr. Thomas F. Harrington, of the Department of Hygiene of Boston, says: "It does not seem possible to conceive a more satisfactory arrangement nor a more effective piece of school machinery than nurses under school supervision."

Certainly the work cannot be thoroughly or satisfactorily done without such a department.

The simplest and best method of systematizing the work satisfactorily is by card index, special cards to be used; upon the one side the pupil's name, age, address, etc., and on the reverse side spaces, properly arranged, to be filled in at the time of the physical examination.

In this way we have the physical history of each child readily available, and subsequent examinations greatly simplified.

Also in case of a pupil's removal to another school district, this card would be of great assistance to the inspector there in charge.

The qualifications which the work of Medical Inspection demands, are: 1. Skill in diagnosis, many cases being obscure in the initial stage and there may be a suppression of facts concerning the child on the part of the parents, or the child itself may seek to hide its real condition.

The best Medical Inspector is he that can penetrate the real or imaginary difficulties, and so do efficient work.

2. In no other field of practice is so much general pathological knowledge required. Even if he had only to deal with contagious diseases, the duty could only be well performed by one who had as nearly as possible mastered the knowledge of vital processes, and their application to disease.

3. The Medical Inspector must have a broad and practical knowledge of hygiene. He must have special and technical knowledge with regard to heating and lighting and ventilation; the proper construction of methods of drainage, of disinfection, of the powers of endurance in the child, length of time of safe confinement for it in the school room. That a law providing for the Medical Inspection of Schools is not only a wise and much needed one, but an absolutely necessary one, in order to properly fulfill the obligation of the State to the parent and the still greater obligation of the State to the child, in order to properly protect the individual, and the community at large by controlling and stamping out epidemics of contagious diseases, the very hot beds of these being in the schools, in order to properly conserve and develop to the highest perfection the energies and talents of our young people, upon which the vigor and integrity of our nation must depend, I hope I have helped to make apparent.

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## TUBERCULOSIS AND THE PUBLIC

BY GEORGE D. PORTER, M.B.

Toronto

*Secretary, Canadian Association for the Prevention of Tuberculosis*

Lest constant repetition only callous the public mind, it will be as well not to dilate here upon the thousands of lives lost annually in Canada from tuberculosis nor to compute the millions in money that such a loss entails. That 22 per cent. of the deaths, during the past decade, in one of our rural communities should have been caused by this disease may not signify very much to those living in more sanitary areas, but it is when that much used but impersonal term the "Public" becomes a personal one, and the physician pronounces one of our own family as tuberculous that it becomes much easier for us to realize how this disease may affect others.

When it is known that there are some fifty thousand such cases scattered over our wide Dominion to-day we can readily understand that the trouble facing one afflicted family is multiplied just fifty thousand times. The question uppermost then is not how tuberculosis affects the public, but how may the public affect tuberculosis, and as the former question is better appreciated when it becomes a personal matter, so may the latter be more easily understood when dealt with in a personal way.

There are three questions almost invariably asked of the physician. The first one relates to diagnosis: "Is the trouble really tuberculous?" Right at the outset lies the physician's greatest responsibility, and here often is his greatest difficulty.

Incipient tuberculosis as a clinical entity has not been generally recognized until recent years, and here special expert opinion, which cannot always be had, is greatly needed. The very numerous signs, symptoms and many diagnostic tests for its early detection is, on the face of it, some confession of our weakness. In fact, at the present time it is often impossible to make a certain diagnosis during the incipient stage. To add to our perplexity we know that the greatest number of cures and arrested cases are from among those patients who have received early treatment. The most conservative estimates give over 50 per cent. of early cases as apparently cured and fit for work, while we know that less than 1 per cent. of advanced cases have any hope for recovery.

What are we to do? While waiting to make sure of our diagnosis in a suspected case of typhoid fever, we have the patient in bed and prescribe a liquid diet. While waiting to clear up the diagnosis in a suspected case of diphtheria or scarlatina, we at least have the patient isolated. When suspicious of tuberculosis then, but uncertain of our diagnosis, what course should we pursue? Tuberculin might often be advantageously employed, but one requires much judgment in its use. The modern hygienic-dietetic treatment of tuberculosis, however, is a therapeutic measure beneficial in many other diseases. In every disease the patient needs abundance of fresh air. Every patient with a temperature of from one degree or more above normal needs rest, and when we exclude the acute infections and the chronic diseases which are readily diagnosed, we are quite safe in prescribing plenty of good nourishing food. The carefully supervised graduated exercises given to tuberculous patients free from abnormal temperature and other special symptoms, may also be prescribed for nearly all classes of patients, when under the same conditions. If then our diagnosis of early tuberculosis is so often doubtful, while our hopes for recovery depend so much upon early treatment, and this treatment (or the greater part of it) is so beneficial in nearly all classes of diseases, why should the physician wait until clinical symptoms become sure, but alarming? Is he not wiser when suspicious of this most insidious and common disease in giving the patient the benefit of any doubt and keeping him in the curable and hopeful class, even if doubtful of the diagnosis, rather than delay until treatment can be of little avail?

The second question relates to prognosis: "Is there any hope?" While this is naturally asked in other diseases, the answer when it is a case of tuberculosis depends much upon the patient himself. Whether treated at a dispensary, in a sanatorium or at home, the tuberculous patient is often responsible for the result of that treat-

ment. Upon his mental attitude, his courage and faithfulness in following the sometimes irksome, often discouraging and always long-continued treatment will depend his hopes for ultimate recovery and usefulness.

The third question is one relating to treatment, but it is neither a matter of therapeutics or hygiene with which the family seem most concerned. It is the question of climate. "Where shall we send the patient?" The question of climate is not always an easy one to answer. In private practice it has some importance, as a certain number of selected cases, who can afford the expense, often do better in other climates, but as a public question that importance is very secondary. As the great delusion regarding the specific value of certain climates for the cure of consumption, fostered by the glowing literature of distant health resorts and aided by our own lack of proper accommodation for the tuberculous at home, has filled the public mind for many years, it might be well to point out that there is no specific climate for the cure of consumption anywhere. The best answer for those who believe otherwise and who journey to such special climates may be obtained from those patients whom they will meet leaving there in search of a better climate elsewhere. Although it is true, that many have returned with improved health and often apparently cured, a large proportion of these could have been as much benefited five miles away from home as five thousand. The question is not so much one of climate as one of environment. We know that some climates are more enjoyable for certain seasons of the year than others, but it is well that we now realize that consumption can be cured in Canada, and that Canada taking the whole year round has not only a healthful and invigorating climate, but with climatic conditions quite equal to those of other countries in the cure of this disease. The great trouble with the public is the lack of climate; too much indoor life in ill-ventilated, over-heated and often infected homes and shops.

Just here it might be well to point out that we import from the United States some seven million dollars' worth of patent medicines every year. Among these are a large quantity of so-called consumption cures. We also have concerns doing the same sort of business in Canada. Now the average "consumption cure" contains opiates or alcohol in large quantities, and while the former often eases the cough and stills the pain, it only masks the symptoms until too late for proper treatment, while alcohol is no more a cure for consumption than it is for crime. Let the people spend their money for good nourishing food and not waste it upon alcohol and dope. Other types of quackery are the various electric and pneumatic



paraphernalia which are about as useful in curing this disease as the armor of Saul would have been to David in fighting Goliath. The public must learn that the five stones by which they can overcome tuberculosis, this giant among diseases, are good food, sufficient rest, fresh air, cleanliness and sunshine.

A fourth question now arises, and to many this is most important, the question of money. We must remember that tuberculosis is a very chronic disease, often dragging on for four or five years or more, during which time the patient is often unable to earn anything, and but seldom full pay. It is just here that the public look to the government for assistance. The Dominion Government, under the British North America Act, places the matter of the health of the people (but not of animals) upon the various provincial authorities. With the exception of the grant to the Canadian Association for the Prevention of Tuberculosis, which has done during the past twelve years a great educational work, regarding the prevention of this disease, they have done nothing toward the building or upkeep of institutions for the tuberculous or for the maintenance of patients therein.

One of the provinces (Nova Scotia) has erected and runs a small sanatorium. Three of the others (Ontario, Manitoba, and British Columbia) have assisted financially the various sanatoria in their respective provinces, while two (Alberta and Saskatchewan) have promised aid to local sanatoria if erected. All told, however, the twenty-three institutions throughout Canada have only about one thousand available beds for the tuberculous. Although double the number of some four years ago, these are, needless to say, entirely inadequate.

The general trend of opinion is that local provision must be made, especially for the advanced cases, for it has already been shown that upon our care of these will depend largely our success in preventing the spread of the disease. The plan of the Ontario Government by which local sanatoria are assisted up to one-fifth of their cost (providing this cost is no more than twenty thousand dollars), and a weekly maintenance grant of three dollars for each patient not paying more than seventy cents a day, is being followed in a modified way by two provinces (Nova Scotia and Alberta). This places the responsibility upon the locality. Up to the present time all these local efforts have been initiated by private philanthropy, followed generally by municipal aid and sometimes by county assistance; this has been supplemented in some provinces by Provincial aid. These methods are along the right lines, but the initiators are few and far between, and their support insufficient. Here is the great value of education

and public opinion, for no permanent sanitary improvement of whatever nature can be brought about without public support. Needless to say, better environment of the people, good housing, proper conditions of labor and rest, pure food and a decent milk supply will be followed by a steady rise in the health and resistance of the people, but we greatly need more suitable accommodation for the tuberculous both in hospitals and sanatoria, to properly control the infection as well as to care for the patients themselves. The general feeling in the Dominion, however, is that the Federal Government should also assist, but if it ever deals with this question nationally, either by assisting local effort or in any other substantial way, the people must express their desires more vigorously. Let us remember, however, that no government can legislate this disease away; the medical profession alone cannot cope with it; no amount of private philanthropy, however welcome, can provide for it, but what we need is union of all these forces, for "to combat tuberculosis successfully requires the combined action of a wise government, well trained physicians, and an intelligent people."

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## THE PROBLEM OF THE INDIGENT INSANE: HOW DOES IT CONCERN THE STATE?\*

BY FRANK WOODBURY, A.M., M.D.

*Fellow of the College of Physicians of Philadelphia  
Secretary to the Committee on Lunacy of Pennsylvania*

A witty Frenchman has remarked that men build insane asylums so that those who are outside of the walls may have some solid support for the belief that they are sane. Whether or not this be an adequate motive depends largely upon the point of view. The fact remains that we *do* build hospitals for the insane, and the question may well be asked at this time: Why we do it? I understand that one of the principal objects of our meeting to-night is to answer this question.

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As I have been asked to address you upon some theme connected with your work, this appears to me a proper time to consider the so-called "County Care" system, and compare notes, in the light of our fifteen years' experience with it in Pennsylvania and your experience, which covers a quarter of a century.

\*Being an address delivered June 25, 1912, at Marshfield, Wisconsin, by invitation, before the Board of Control and the Superintendents of the State and County Hospitals for the Insane of Wisconsin.

In the first place, we have noticed in Pennsylvania that County Care legislation has proved of great value in establishing the principle of state supervision and financial responsibility. The State representatives institute methods of care, and endeavor to establish a uniform standard of maintenance, by formulating rules and regulations governing the local institutions. This, which is the most important and fundamental feature of the system, experience has shown to be of great advantage to the indigent insane, whose condition has greatly improved of recent years, as compared with what it was found to be when these laws first went into effect.

In the second place, the stated sum paid for maintenance has been of great assistance to the counties. The good results are shown in the character of the buildings which many of them have erected for their insane through this means, and the relatively high standard of care now prevailing in many of these county hospitals.

In the third place, the placing of the chronic insane in agricultural colonies, in small institutions, is beneficial to the patients, because they are near to their relatives and friends, they are not disturbed by the violent and noisy neighbors, and they live amid home-like surroundings. They spend their time largely in the open air working on the farm, and thus have a better chance for recovery than if kept in a large hospital, with several thousand other patients, of all grades of insanity.

Finally, it has been found that the State can provide for at least half its insane, in the smaller institutions, at a cost materially less than the expense of maintaining them in the large State Hospitals. This consideration is by no means unimportant, but of course is secondary to the comfort and well being of the patients.

Some of the criticisms which have been made upon the "County Care" system really apply only to details of administration, and not to the method itself. For illustration, the local authorities may place an incompetent superintendent in charge of a hospital, and patients may be less well fed than at other hospitals. Other details might be cited, such as the abuse of restraint, but this will suffice to illustrate the conditions which might occur under almost any system. Eternal vigilance is the price of many things besides liberty, and many evils will disappear when brought out in the bright daylight of publicity. Moreover, the Wisconsin Board of Control is not without resources to correct such evils, and a knowledge of this exerts a powerful preventive influence. Local visiting boards in each county greatly aid in this good work.

A weightier objection is that the rule, which requires all the chronic patients to be sent away from the State Hospitals at the

termination of a year, as I understand is required here, is injurious to the State Hospitals by depriving them of all of the workers, and thus crippling their resources and increasing largely the cost of maintenance. This rule we have not adopted in Pennsylvania, where our State Hospitals have about 75 per cent. of chronic cases in their population. The proportion, however, could be materially reduced with great advantage if we had enough county hospitals to which we could transfer more of our chronic insane.

Other forcible criticisms against the local hospitals are that being under the immediate control of the County Poor Boards, they are too closely allied to the County almshouse, and the medical management is subsidiary to the economical administration of the farm. In Pennsylvania we endeavor to have physicians as superintendents, and the results are beneficial to the patients, even if we do not get as many potatoes.

The alternative of the plan we have just been discussing is that of entire State care, which has many able advocates. Let us now briefly compare these two plans also from the standpoint of experience.

First, we have the Wisconsin method of comparatively large State Hospitals, of say 600 to 800 beds, for the reception of acute cases, which provide appropriate medical treatment, or afford psychic reëducation for those capable of improvement by such means; and in addition numerous smaller hospitals where the chronic insane may live out of doors and work in the garden, or on the farm. Secondly, for comparison, we may take the New York plan of congregating all classes in large State Hospitals holding 4,500 to 5,000 patients, as seen at the Manhattan State Hospital on Ward's Island.

If we institute the comparison with regard especially to the comfort of the individual patients while in the hospital, it is beyond all question that the patients in the smaller hospitals are more comfortable. At the present day, the opinion of many of the leading alienists throughout the world is that one superintendent should not have more than 1,200 to 1,500 patients under his charge; and that hospital capacity should not go beyond 1,800 beds, where all kinds of cases are received. Owing to the impossibility of providing employment on the farm for four or five thousand patients, a large proportion have nothing to do, and their vacuous existence favors early dementia. I have been much gratified recently by hearing that the New York authorities now favor the establishment of farm colonies in agricultural districts, thus creating primary and secondary institutions, which is not very different from our idea of County Care.

To sum up the matter, I would say that the Wisconsin method, from our experience in Pennsylvania, has solved the problem of care of the indigent insane. I believe that the standard of custodial care now existing in Wisconsin and Pennsylvania, broadly speaking, cannot be improved upon, and no further advance in this direction need be looked for. As regards medical treatment, I further believe that the best results are obtainable where the acute and curable cases of insanity are sent to hospitals which are especially equipped for treating psychopathic cases, and where the institution is of moderate size, so that each case shall receive personal attention from the medical superintendent, and special treatment for his individual needs.

Classification is at the bottom of the treatment of insanity; and all alienists are agreed that the acute cases should not be allowed to mingle indiscriminately with all groups of insane patients.

A complete system, to my mind, would be the following: (1) State Hospitals (1,500 to 1,800 beds) for acute cases, equipped with all the appliances necessary, under the charge of an experienced alienist, with a competent staff of assistant physicians and with trained nurses; (2) small hospitals (200 to 250 beds) for the chronic able bodied insane, constituting farm colonies; (3) asylums for the adult feeble minded, including senile demented; (4) epileptic colonies; (5) a hospital for mental defectives under 16 years of age, with a training school; (6) a custodial hospital for the criminal and dangerous insane. As adjuncts to the preceding, there might be established State workhouses, for the vagrant and the constitutionally inferior delinquents, and also State inebriate hospitals for chronic alcoholics, who are now supported in our institutions for the insane.

As this is a large programme, and involves the expenditure of millions of dollars by the State, I think that the plan of allowing the counties to share the expense of maintenance is a strong feature in favor of the Wisconsin plan, as now carried out in Pennsylvania. Since the counties usually collect their share of the cost from the relatives of the patient, they are largely reimbursed for their part of the expense, and the burden on the poor districts is not as great as it would at first appear.

The annual number of commitments is larger than the discharges, so that for a number of years the aggregate increase of the insane receiving institutional care in Pennsylvania has been about 500 annually. In other words, we have now over five thousand more in our hospitals for the insane than there were ten years ago. Comparing the census returns in 1900 and 1910, we have had



an increase in the general population of Pennsylvania of 21.6 per cent; during the same period, the number of the insane in institutions increased from 11,249 to 16,629 or 47.82 per cent.

These figures do not warrant the conclusion that insanity in our general population is increasing at an alarming rate; merely that there is a larger number receiving institutional care. But even this view of the situation must cause serious thought among those concerned about the burdens upon the taxpayers and the management of the revenues of the State. We note that this rapid increase of dependents upon the bounty of the State, is of comparatively recent origin. In 1850 there were only twenty State Hospitals in existence. Pennsylvania opened its first State Hospital for the insane, the State Lunatic Hospital, in 1851. The special report of the United States Census office on the "Insane and Feeble Minded," issued in 1906, states that on June 1, 1890 there were in the United States 162 hospitals for the insane, of which 119 were public and 43 private institutions. On December 31, 1903, there were 328 hospitals, of which 226 were public and 102 private institutions. During the same period, the numbers of the insane under treatment increased from 74,028 to 150,151. In the period from 1890 to 1903 inclusive, thirty four new State Hospitals were opened, without taking into account the additions made to older hospitals, or new ones erected in place of those formerly existing. At present there are 172 State Hospitals in the United States for the Insane and Feeble Minded (including epileptics).

The question of the increase of insanity in the population, although a highly important one in this connection, is too large to take up at present. I will merely say that I think it is more apparent than real, and that there is actually no such alarming increase as some sensational writers have alleged. In fact, upon studying the actual increase in the numbers of the insane of recent years, the New York State Commissioners have found it to be entirely accounted for by the increased immigration since the Spanish-American war, the increase (above the normal ratio to increase of population) being entirely made up by insane aliens now being supported in their hospitals.

The fact remains, however, that within recent years there has been an enormously increased demand upon the State for accommodations for the mentally defective classes. This is, in my mind, especially attributable to the fact that during the last half century a complete revolution has taken place in the public mind upon the subject of hospitals for the insane. Whereas they were formerly objects of horror and detestation, and were regarded as "mad

houses," tainted with a strong suspicion of crime by unlawful detention, and commitment to them was regarded as a calamity and as a last resort, now they are known to be truly modern, attractive, and well equipped hospitals, where patients are skilfully and humanely treated, and where they can be frequently visited by friends. The State has provided such comfortable resorts for the mentally disordered, that the friends of patients are now only too glad to avail themselves of such generous provision. Under such circumstances, it is only natural that the demand should exceed the supply.

Is there any remedy for this constant demand for new hospitals? One way that at once suggests itself is to reduce the number of admissions, if possible. In my own State, we had a law passed last year which permits the establishment of psychopathic wards in general hospitals, similiar to those in operation in New York, at Bellevue, also in Brooklyn and Albany, and in some other states. By the establishment of such detention wards in general hospitals, it has been found that temporary confusional conditions, toxic and emotional insanity, may be treated without committing patients to hospitals for the insane, and to this extent reduce the number of admissions. I think also that the establishment of neuropathic residences with appropriate surroundings in the country districts, for cases of threatened mental breakdown, or mild cases of mental disorder, and for convalescent patients, might relieve congestion in our public hospitals. The establishment of such homes, or sanatoria by private enterprise, should be encouraged, provided the institutions are maintained under the rules, and subject to constant supervision of the State Committee or Board of Control.

"Find out the cause of this effect,  
Or rather say the cause of this defect,  
For this effect defective comes by cause."

After all has been done for the insane that can be done, there yet remains the great question of prophylaxis. What can be done to reduce the enormous number of the insane requiring institutional care? This brings up for consideration the removable causes of insanity. Psychiatric authorities are agreed that the principal causes of insanity are three: heredity, syphilis, and alcohol, and the most potent of these is alcohol. These causes, however, are so intimately bound together that they cannot be dissociated. And closely allied to them is poverty, and all that this implies of want, distress, evil living, and social somatic degradation. It has been shown by the records of a large New York hospital extending over a series of years that abuse of alcoholic liquors was assigned as the direct cause

of 30 per cent. of the cases, and could be assigned as an indirect cause in at least 30 per cent. more. Alcohol thus being concerned directly or indirectly in two-thirds of the cases.

It is a significant fact that in Germany it has been observed that cases of epilepsy, which is so closely associated with insanity, and imbecility, are from two to three times more frequent in certain districts where distilleries flourish than in other places that are remote. Epilepsy in children is known to be related to alcoholism in the parents. These epileptics constitute another group of mental defectives for which the State should make proper provision.

Limitation of time prevents me from stating more in detail the proofs that alcohol causes insanity, feeble mindedness, and epilepsy; but as they are contained in our text books on psychiatry, physiology and pharmacology, such a recital would be unnecessary and probably would add nothing to your knowledge. "Wine is a mocker, strong drink is raging, and he who is deceived thereby is not wise." And the iniquities of the fathers are visited upon the children.

Concluding my remarks, I think that I have now indicated that the care of the insane and feeble minded constitutes a great economic problem, and that this problem must through force of circumstances concern the State, since there is no other authority that is financially able to take it up and solve it systematically and efficiently. It appears to me that the best method that has yet been devised of meeting this exigency, created by the problem of the insane and feeble minded, is by so called "County Care." I say so called, because to my mind it is not really care by the County, but by the State. It is actually a form of state care, in which the counties are required to pay a share of the expense, while the oversight and control of both state and local hospitals is in the hands of the State.

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## PUBLIC HEALTH AND THE YOUNG DOCTOR

By E. W. MITCHELL, M.D., Cincinnati, Ohio

When we look back twenty-five years we realize that enormous progress has been made in the conservation of public health. As we have advanced, the problems of public health have multiplied and widened in their scope. The profession and the most intelligent portion of the laity are now awake to the possibilities of preventive medicine as never before. The great accomplishments in Cuba, Porto Rico and especially in the Canal Zone are demonstrations of what can be done by the practical applications of the scientific knowledge already in our possession.

That we are at the beginning of a new era in preventive medicine must be evident to any one who considers the developments of even the last few years. It is sometimes said that in laboring to promote preventive medicine the doctor is working to destroy his own business. This is because the "business" of the doctor has heretofore been considered to be the treatment of the sick. In the immediate future it will be universally recognized that it will equally be his "business" to prevent sickness and ultimately the latter will be the greater part of his "business." The *young* doctor has a peculiar relationship to public health because of this rapidly changing attitude toward medical work. The demand is now upon him to know more and to do more toward warding off illness, and toward the preservation of the health and strength of his fellow men than was required of his fathers.

One significant fact in relation to public health at present is its sociologic aspect. It is realized that the life of a community must be studied in all its relationships in order best to promote the health of its people—there must be considered drainage, sewerage, water supply, milk supply, food supply, housing conditions, working conditions, quarantine of infectious diseases, etc., etc. To carry into effect the measures which shall preserve the health of the community and which shall develop strong and good citizens, requires organization and concerted action by the community. Hence we must have health departments exercising very wide authority under expert management; we must have hospitals, sanitariums, clinics, etc. With this increased care by public authorities along with diminished amount of sickness as a result, what is to become of the general practitioner, especially of the young doctor struggling to build up a practice? Indeed already has the pressure been felt in nearly all of our larger cities. Many well qualified practitioners find it more and more difficult to make a respectable living. This problem will partially be met by the operation of the law of supply and demand. The profession is as yet overcrowded because of the great number of poorly prepared men turned out by an excessive number of low grade medical colleges. That the readjustment is rapidly taking place is shown by statistics. Since 1904 the number of colleges has been reduced by fifty and the number of students enrolled in 1911-12 was 9,730 less than in 1904. The higher requirements for entrance and the greatly improved standards for teaching are bringing into the profession a higher type of men and turning them out far better prepared for their work. In the past, low grade medical schools sending out great numbers of poorly qualified doctors have kept up a competition which has been largely re-

sponsible for swelling the ranks of quacks, for giving the general public a low estimate of the profession, and for giving us poorly administered health departments—for unfortunately to a very great extent under the corrupt political conditions of most of our American cities, positions in the public health services have been filled by men whose qualifications did not enable them to get a living in private practice, but who had enough political pull to “get a job.”

As a result of higher standards in the profession, greater intelligence in the community and an awakened political conscience, we already see a greatly improved public health administration in most of our great cities.

In the improvement of our public health services with the widening of their scope and the multiplication of their activities, there must open positions for many medical men and especially for the younger medical men, which will help to compensate for the diminished work in general practice. Our own city will serve as an excellent example of the very rapid evolution which is going on in the public health work. I choose it as an illustration, first, because it is one immediately at hand; secondly, because it represents a fair average in size; third, because in its progress in medical matters it represents a fair average between the most progressive and the most backward of the cities in the country. It is a city which has been “somewhat backward in coming forward,” but which at the present time is making very strenuous efforts for the promotion of public health. It has built a great water works system supplying the citizens with pure water with the result of cutting off from its medical practitioners a very large income from typhoid fever and diarrheal diseases. It has converted within the past four years one of the dirtiest milk supplies into one of the cleanest in the country, with the result that the doctors have about half as many sick babies to attend as they had previously. Only five years ago was an active warfare against tuberculosis begun by the organization of the Antituberculosis League, which now, after a struggle against public ignorance and indifference, is carrying on an efficient and vigorous campaign with the cordial support of an awakening public. Up to two years ago the health officer was a doctor chosen by a political board and working under the direction of that board, devoting to the duties of the public office what time he could spare from his private practice. It should be stated in this connection that fortunately, with very rare exceptions, good men who did excellent work, considering the adverse conditions under which they labored, were chosen. Now we have a nonpolitical board of health of five members, who elect a health officer chosen



for his fitness for the position without limitation of the term of office, who gives his full time to the public service.

Other positions filled by doctors are that of the Assistant Health Officer, the Superintendent of School Inspection, and eleven District Physicians, all giving full time to the duties of their offices. The duties of the district physicians are first, surveillance over infectious and contagious diseases; second, medical relief to the poor; third, school inspection. These positions are filled by civil service examination and are held under civil service rules. As all these positions, except that of the health officer, command very moderate salaries, they very naturally are taken by young doctors. In addition to these positions there are numerous openings in the various institutions, public and semipublic, such as hospitals, infirmaries, the Work House, House of Refuge, etc., employing medical attendance on salaries. There are also a number of men who devote their time to laboratory work. Altogether there is, therefore, a considerable number of doctors, the majority of them comparatively young in practice, who find employment outside of general practice, and this number withdrawn from the field lessen to that extent the competition for general practice. That the number and variety of positions will continue for a good while to increase rather than diminish is certain; that small towns, counties and townships will soon fall into line in the establishment of more thorough health departments is a development of the very near future, and these will demand efficient health officers and laboratory workers giving full time to their official positions. Therefore, the young men who are now studying medicine or those who contemplate taking up the study, need have no fear of not finding work enough to do. In fact, there has never been a time when there was so great a *variety* of employment open to medical men. The man whose talents and tastes fit him for the work with test tube and microscope may find his place in the laboratory. The man who has business and executive ability may find his in some of the administrative positions of national, state or local health services. The man who combines with his medical education a zeal for sociologic work has many places waiting for him.

Special work requires special fitness and special preparation for the work. The demand in every department of life to-day is for *efficiency*. The time is rapidly passing when the community will take it for granted that any man who can write M. D. after his name is good enough to look after the health of its people. The medical schools have already heard the call and are preparing to give their students a more thorough training for public health

work. The New York State Board is now arranging with the medical colleges of the State for special instruction of their students in regard to preventive medicine. Last year the Ohio-Miami Medical College in coöperation with the Cincinnati Health Department gave its senior class a course of practical work in the health department. The arrangement is to be continued with the work assigned to the junior class. Whereas former classes went out with such a smattering knowledge of the subject as they gathered from a short course of lectures on hygiene and sanitation, they now will go out with the practical knowledge gained by personal experience in the various departments of the Board of Health.

There is one serious defect in the present status of public health service: With few exceptions the country over, the compensation given in these positions is ridiculously inadequate to command the services of the most competent men and to justify those who accept these services in continuing in them long enough to acquire the experience to give the most valuable service. To remedy this, the public must be educated to the true value of such service, and the surest way to educate is by actually demonstrating by honest and efficient work that such service does diminish the sickness and death, and increases the health and strength of the people.

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## THE SANITARY CONTROL OF LOCAL MILK SUPPLIES THROUGH LOCAL OFFICIAL AGENCIES\*

BY ERNST J. LEDERLE, PH.D.,

*Commissioner of Health, City of New York*

In discussing the subject which has been assigned to me, there are several reasons for speaking largely from the point of view of milk inspection in New York City. In the first place my own experience in this field has been gained almost entirely through a connection of twenty years, in one capacity or another, with the local Department of Health. But of greater importance is the fact that the experience of New York City in the control of its milk supply, both historically and in the light of important recent developments, is, I believe, full of significance to other municipalities and particularly to large cities facing similar problems. I shall trust, then, that my references to the work in our city may contribute in a small

\*An address delivered at the Fifteenth International Congress on Hygiene and Demography at Washington, D. C., before Section V, September 27, 1912.

degree to the discussion of the general subject in which we are interested.

It will perhaps be generally recognized by those interested in the administrative control of the production and sale of milk that New York City offers a most conspicuous example of a municipality undertaking practically the entire supervision of its own milk supply all the way from the cow to the consumer. Most large cities doubtless exercise more or less jurisdiction over the sale of milk within their limits, but no other city that I know of has developed such an extensive system of inspection of dairies and creameries as is practiced by the city of New York, notwithstanding that nearly all the 45,000 farms on which our milk supply is produced are located outside the city limits and more than 6,000 of them outside the State of New York.

The Board of Health has power to adopt a Sanitary Code without the concurring vote of any other municipal authority, and this code has the full force and effect of law in New York City so long as its provisions are consistent with general State laws. The existing system of public control of New York's milk supply is based upon the sanitary legislation of the Board of Health, in the form of appropriate sections of the Sanitary Code and supplementary rules and regulations.

Let us now consider briefly some of the facts that have made the sanitary control of milk supplies one of the most important public health problems of our communities.

#### INFANT PROBLEM

Milk suitable for infant feeding must comply with the following requirements:

It must have the proper nutritive value; that is, it must not be impoverished by the removal of a portion or all of its fat, or the nutritive value lowered by the addition of water. It must be clean. In general it is agreed that the bacterial content of milk is an accurate scientific index of its cleanliness, but it is comparatively recently that the danger of bacterial contamination of milk has been appreciated. It has been found that infants under one year are very susceptible to poisoning by milk infected with excessive bacterial growth, particularly during the hot season, when the resistance of the digestive tract is lowered.

Milk infected with the germ of bovine tuberculosis may transmit tuberculosis to children, but is not apt to infect adults, while milk carrying the germs of typhoid fever, scarlet fever, diphtheria and tonsillitis, is dangerous to persons of all ages.

## INFECTIOUS DISEASES AND MILK

Tuberculosis, typhoid fever, scarlet fever, diphtheria and tonsillitis are the principal diseases which in this country are transmitted by means of infected milk. It is believed that the tubercle bacilli are in the majority of cases derived from the cow, but they may come from human sources. Typhoid bacilli in milk are always derived from man. The contagion of true scarlet fever transmitted through milk is considered as always coming from man, but there is a disease closely allied to it, the contagion of which is derived from the cow. Diphtheria bacilli are regarded as being always of human origin.

The streptococci exciting tonsillitis are believed to be derived both from cases of septic inflammation of the udder and from human sources. According to Park, about 3 per cent of all tuberculosis existing in New York City exhibits the bovine type of bacilli and is therefore probably caused by milk infection. Of 279 cases of tuberculosis in adults examined by him, only one case was due to the bovine type. On the other hand, 22 out of 84 very young children and infants examined were infected with the bovine type, or about 24 per cent.

## TYPHOID FEVER AND MILK

During the last two years much light has been thrown upon the definite origin of outbreaks of typhoid fever due to milk infections, through special investigations carried on by the New York City Department of Health. Several such outbreaks were traced definitely to so-called "carriers," persons who have recovered from an attack of typhoid fever, but who remain infected and continue to excrete typhoid bacilli. One outbreak of 400 cases was traced to infection of a milk supply by a typhoid carrier who had had the disease forty-seven years ago. In another 50 cases were traced to a man who had had the disease seven years ago. These important new discoveries led the Department to strongly urge the necessity of the pasteurization of all milk except that produced under special stringent conditions.

## PUBLIC PROTECTION OF MILK SUPPLIES

In view of these sources of danger to the public health, what means can be employed to make public milk supplies safe?

The problem involves three distinct features:

(1) The prevention of adulteration, either by the addition of water, the removal of fats, or both, and the exclusion of all preservatives and, in fact, all foreign substances.

(2) The production of a clean milk, a milk low in bacteria, in-

volving great care from the time of milking to actual consumption. This involves effort to insure the cleanliness of the cows and the milkers, properly constructed, clean barns, proper and thoroughly cleansed vessels and utensils which the milk comes in contact with, exclusion of dust at every stage, immediate reduction of temperature after milking, thorough icing during transportation, the sale under sanitary conditions in stores, and finally, proper care in the hands of the consumer.

(3) The production of a milk free from pathogenic organisms, requiring first of all healthy animals, and subsequently, the careful handling of the milk at all stages to prevent the introduction of the germs of infectious disease through human agencies, flies and dust.

#### METHODS OF PUBLIC CONTROL

The general outlines of the methods adopted by boards of health and other governmental authorities in controlling the sanitary quality of milk supplies of cities are fairly well defined and generally accepted. It is recognized that a system of inspections of dairies where the milk is actually produced, supplemented by inspections of creameries and of the methods of shipment and handling all the way from the farmer to the consumer, are necessary elements of this public control. Such inspection must provide for the detection of contagious diseases among those handling the milk, as well as for the improvement of sanitary conditions.

Whether these details are carried out under the supervision of municipal or State authorities is a matter of expediency largely governed by local conditions. Theoretically, it would be better that State authorities should exercise a uniform control over the production and sale of milk in all communities. In practice, some of our large cities have found it necessary, in the absence of thoroughgoing State control, to develop their own system of milk inspection in the country as well as in the city.

The control of conditions under which milk is handled and sold within the city is a still more usual function of the local authorities and includes the regular inspection of stores and wagons, with frequent chemical and bacteriological tests and the usual methods of enforcing sanitary requirements by resort to the courts if necessary.

#### THE NEW YORK PLAN

More particular reference to the present system of milk inspection by the Department of Health of New York City and of the methods now in use will perhaps illustrate certain phases of our general subject. I may say here that for the information of mem-



bers of the Congress who are especially interested in this subject and in the experience of New York City the department has had prepared a special bulletin dealing much more fully with the details of our work than I shall be able to do within the present limits.

The magnitude of the problem which New York faces may be imagined, when it is considered that the city draws its daily milk supply of 2,500,000 quarts from 44,000 farms located in six different States, namely, New York, New Jersey, Pennsylvania, Connecticut, Vermont and Massachusetts. Some cream is also received from Ohio and Canada. The "milk shed" covers an area of 50,000 square miles. The milk is produced from approximately 350,000 cows, and shipped from 1,100 creamers over 11 different railroads, the shortest haul being 50 miles and the longest 425 miles. When it reaches the city it is received at 15 different terminals and eventually delivered in 5,500 wagons and dispensed at 14,000 stores. It is estimated that about 127,000 persons are engaged daily in handling the city's milk supply, and on the basis of the relative frequency of typhoid bacillus carriers in the population of New York City there may be perhaps a hundred such persons included in this army of milk handlers.

Milk inspection began in New York in the late 70's and early 80's, and this inspection work was conducted in coöperation with the State officials of New York and New Jersey. Then, however, the elementary forms of adulteration, consisting in the removal of cream and the addition of water, were the only points considered. Later, it developed that a knowledge of the bacteriological content of milk was of much greater importance so far as the public health was concerned than was its chemical composition. When it was found that the bacterial content of milk was an accurate index of the cleanliness of the methods used in its production, attention was more and more directed to the supervision of conditions at the farm, at the shipping stations and on the railroads. This work was continued in 1906 and it was then realized that successful control would never result until the milk was traced back to its very sources. This was the beginning of actual dairy inspection by the New York Department of Health. From two inspectors in 1904, the number has gradually risen until there are now 56 milk inspectors, of whom approximately one half are assigned to the country district and one half to the inspection of stores, wagons and other premises within the city.

#### LEGAL ASPECTS OF THE NEW YORK PLAN

It was under the administration of my predecessor, Dr. Darlington, that inspection of milk in the country districts was first es-

tablished. Perhaps one of the most interesting phases of this work is the legal basis through which the authority of the department is exercised throughout an area covering portions of six different States. The sanitary Code requires that no milk shall be sold in the city of New York without a permit from the Board of Health, and the board maintains that it is entitled to ascertain the conditions under which milk is produced before issuing a permit to the dealer who buys that particular milk and brings it to the city. Under the operation of this system, it is rare that permission to inspect a dairy or creamery is refused. When such refusal is met with the department notifies the dealer, who then faces the alternative of refusing to receive milk from the particular farm or creamery under criticism or of having his permit to sell milk in the city revoked. The result, of course, is very salutary in excluding from New York City all milk from farms which do not meet the requirements. The question may be raised as to what protection other communities receive under this plan, since the producers whose milk is excluded from New York City doubtless find a market elsewhere. This exhibits the great defects of local control of milk supplies. It is undoubtedly far better that the State should undertake the control of milk production under adequate and uniform standards rigidly enforced throughout the State by a sufficient number of inspectors. New York State has an excellent Department of Agriculture and adequate laws governing the production of milk, but the appropriations made by the State for this work are totally inadequate to insure the character of the supervision of dairy farms which the city of New York believes to be necessary to the purity and wholesomeness of its milk supply. Even if State supervisions in New York were sufficient, a similar question remains in the case of the six other States from which the city's milk is drawn. With these varying jurisdictions, the city has been obliged to face actual conditions instead of legal or constitutional theories and evolve its own system of supervising the milk at every stage from the dairy to the breakfast table.

As may be well imagined, the attempt of New York City to exercise authority over the milk production of other States was not allowed to go unchallenged and the whole question was carried through the courts in appeal after appeal until finally the Supreme Court of the United States in an unanimous opinion affirmed that the position of the city of New York was reasonable, valid and not unconstitutional. Those who care to read the text of this decision in full will find it reported in (199 U. S., 552), (81 App. Div., 128), (175 N. Y., 440). In its decision the Supreme Court stated that

any State has a right by reason of regulations to protect the public health and safety and that the Supreme Court "will not interfere because the States have seen fit to give administrative discretion to local boards to grant or withhold licenses or permits to carry on trades or occupations, or perform acts which are properly the subject of regulation in the exercise of the reserved power of the State to protect the health and safety of its people." Here then we have the support of the highest court in the land behind our effort to procure proper sanitary control of our local milk supply, and here perhaps this paper might very properly end were it not that I feel compelled to take advantage of this favorable occasion to refer very briefly to the developments of this problem during the past two years in New York, the more so as the problem we have attempted to solve will be encountered in a greater or less degree in the attempt to protect the milk supply of any city.

#### DEFICIENCIES IN LOCAL MILK INSPECTION AND RECENT IMPROVEMENTS

For several years we have felt that our methods of controlling the milk supply were inadequate and did not accomplish the desired results, particularly in the following respects:

It is now a well known fact that the general milk supply of every large city in the world is unfit for use in infant feeding. Two well defined methods have been applied in New York to affect a change in this respect; first, the production of a special grade of milk, "certified" and allied grades, for infants, and, secondly, the general movement to improve the whole supply so that milk suitable for infants might be procured everywhere where milk is sold. Each of these methods has been successful to only a very limited extent. After ten years less than 1 per cent of the city's milk is of the certified type or equivalent thereto and the expense of this class of milk is almost prohibitive for general use in infant feeding. In fact, it is a luxury within reach of comparatively few. What is needed is a safe milk which can be furnished at a price within the means of the masses.

The attempt to bring the general market milk to the degree of purity required for infant feeding can never be successful in a large city. In the first place it is economically not feasible, since too great a part of the total supply of milk is used for other purposes, for adults who do not require a milk of such special requirements and for cooking purposes where a still less degree of bacteriological cleanliness is necessary. It naturally follows that milk for the last two mentioned purposes can be produced and sold at lower prices

than the special infants' milk. In the second place, although the system of surveillance has materially lessened the danger of infection of milk from the presence of cases of infectious diseases among the employees on the farms and in the creameries or from unhealthy animals, our present knowledge of the propagation of typhoid fever by milk infected by "typhoid carrierers," and the fact that tuberculosis is so widespread among our dairy herds, have forced us to the conclusion that no matter how complete or well organized the system of dairy inspection, it will not be possible to render entirely safe the ordinary commercial milk which is produced and shipped to a city from so large a territory as is comprised in the New York City milk field.

In our opinion the only way in which the sanitary authorities can meet these conditions is by requiring the pasteurization at least of all milk that is not of special exempted grades. We have always been impressed with the necessity of dealing with milk to be used for infants as a separate problem. Since the requirements are so much more exacting for infants' milk and since it has been well established that this grade of milk is much more expensive to produce and should command a higher price than can ordinarily be demanded for milk in general use, it was deemed wise to separate the two problems.

As early as October, 1907, in an address given at Milwaukee I took the position that the sanitary authorities should establish a system of grading our milk supplies, and that practically universal pasteurization must be insisted on in the interest of public health. Since January, 1910, the development of such a milk program has been one of the foremost subjects under consideration by the Department of Health. Early in January, 1912, on my recommendation the Board of Health of the city of New York officially adopted the following plan of grading and labeling of all milk brought into the city and sold there:

#### GRADE A, FOR INFANTS AND CHILDREN

1. *Certified Milk*.—Milk certified by a Milk Commission appointed by the Medical Society of the County of New York or of the County of Kings as being produced under the supervision and in conformity with the requirements of that Commission.

2. *Guaranteed Milk*.—Produced under the same standards as Certified Milk, but under the supervision of the Board of Health.

3. *Inspected Milk, Raw*.—This milk must come from tuberculin tested cows. Farms must obtain in an official score at least 75 points with a minimum of 25 points for equipment and 50 points

for method. The milk must not contain more than an average of 60,000 bacteria per c.c. when delivered to the consumer.

4. *Selected Milk Pasteurized.*—Farms must obtain at least 60 points in official score; 20 at least for equipment and at least 40 for method. The milk must be pasteurized as prescribed by the rules and regulations of the Department, which, of course, provide for such temperatures and times of exposure to heat as have been shown by our own researches to be necessary to render the milk thoroughly safe. This milk must not contain over 50,000 bacteria per c.c. when delivered to the consumer, and must be delivered in bottles, except on special permit in certain cases. Containers must be labeled "pasteurized," and the label must bear date and hour when pasteurization was completed, the place where it was performed and the name of persons or corporation performing it. The milk must be delivered to the consumer within 30 hours after pasteurization. Milk to be pasteurized must not contain over 200,000 bacteria per c.c.

#### GRADE B, FOR ADULTS

1. *Selected Milk, Raw.*—From cows which are certified as healthy by veterinarians after physical examination. Farms must score at least 68 points, 25 for equipment and a minimum of 43 for method.

2. *Pasteurized Milk.*—This milk must be delivered within 36 hours after pasteurization.

#### GRADE C

This grade is to be used for Cooking and Manufacturing Purposes Only, and includes all raw milk not conforming to the requirements of Grades A and B.

The full details of the new rules and regulations will be found in the special bulletin already mentioned. The Department is now actively enforcing the new requirements, and in our opinion the adoption and enforcement of the plan marks the greatest advance ever made in the public sanitary control of New York City's milk supply. I will indicate briefly what it is expected that this plan of grading and labeling will accomplish.

#### FOR THE FARMER

It means in effect that farms will be scored, and a farmer will know what grade of milk he is producing and how he can produce a better grade if he so desire. The better grades of milk will command a higher price at the farm, therefore for the first time in the history of milk production an incentive will be given the farmer to produce a cleaner milk. This principle, of course, was established



on a very small scale in the production of certified milk, but never before in production of milk for the masses. There is an apparent contradiction of this principle in the case of pasteurized milk, in which case under the present condition, a supply of milk, of the cooking grade (C) may be brought into the higher grade (B) by pasteurization, without any material improvement of farm conditions. The advantage to the general public health of pasteurization is, however, so great that it was thought wise to encourage pasteurization to the fullest extent possible, without at this time making too many restrictions, but when finally worked out the general requirements for all milk, with the exception of that for cooking, will have to be further advanced so that there will be no setback in the movement for a cleaner milk supply, the fear of which condition has led so many persons to oppose the introduction of pasteurization.

#### FOR THE DEALER

The grading and proper labeling regulations will be a great incentive to the progressive and honest dealer who is willing and anxious to sell his products on a proper basis, and who by this plan will be aided in his efforts by official control. It will no longer be possible for the dishonest dealer to market the lowest grade of milk under false representations or to sell cooking milk for infants. Those dealing only in the lowest grade, cooking milk, will have to sell the same as such or go out of business.

#### FOR THE PUBLIC

The users of milk will be enabled to purchase the quality of milk they require and for which they can afford to pay. This is particularly important in the case of milk for infants and children. For those who cannot afford to purchase the special grades offered for this purpose, specific instructions will be given under what conditions Grade B may be used, and in case of the poorer classes provisions have been made by the municipal authorities, through the Infants' Milk Stations of the Department of Health (at present 55 in number, located in various parts of the city) to supply milk for infants' use at a moderate cost, and without charge in certain special cases, through the charitable agencies operating in conjunction with the Department.

The plan carries with it the establishment of the broad principle that the milk sold from cans ("dipped" or "loose" milk) in the grocery store is unfit for use for infants.

The special requirements made for the production of raw milk (Grade B), its limitations to use for adults and the recommendation

that pasteurized milk of the same grade is a safer milk, will encourage the extension of pasteurization, as it was intended to do.

We feel that the time has come when just as radical changes as have been inaugurated in the requirements for the grading and labeling of milk will have to be applied to the regulations for the sale of milk in stores. The situation is peculiar. Milk is sold in about 20,000 places. Every little corner grocer sells milk, not because there is any direct profit derived therefrom, but as a convenience to the customer who desires to purchase other commodities. There is therefore no incentive to the proper care of the milk. It must be understood that almost all of such milk is dipped from cans. No permanent reform can be inaugurated until the sale of this class of milk is limited to milk stores where other commodities are not permitted.

#### INFANTS' MILK STATIONS

I have already referred to the 55 municipal stations for dispensing milk for babies which are now in operation under the administration of the Department of Health. This work was inaugurated in 1911, when an appropriation was made for 15 experimental stations. A large number of depots were also conducted by private organizations, and the work was so successful that this year the city made provisions for the much larger number. I believe, however, that this work is only in the developmental phase, and that the ultimate solution of the infants' milk problem must and will be found in the production of the special grades of milk suitable for infant feeding, and the placing of this milk on the general market so that it will be possible for mothers to obtain easily milk of the proper quality at reasonable prices in milk stores or from dealers. In that event the municipal and other milk stations for infants will doubtless gradually assume what I take to be their proper function of serving as centers for the education of mothers in the care and feeding of babies, and in the care of milk in the home.

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## EDITORIALS

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### THE FUTURE AND SCOPE OF PREVENTIVE MEDICINE

We have frequently heard it said that preventive medicine will be the medicine of the future; it really may now be said that it is not only the medicine of the future but the medicine of the present time. Of course, the future of preventive medicine simply teems with immense possibilities, and the revolution of methods of treatment which is taking place in all parts of the civilized world is as yet only in its infancy, but the commencement of this new order of things happened some time ago and its development will proceed very rapidly. The infant is out of its swaddling clothes, and from now on will grow so rapidly that it will tax the abilities of the ordinary medical practitioner to keep pace with its growth. The signs of the times clearly show that a new movement in all phases of commercial, professional, and social activity is gathering strength daily, and the stir in medical circles merely signifies that the medical profession must move also. Germany, and Great Britain to a less extent, are the most conspicuous examples of the social unrest, and thus likewise typify best the development of the medical pro-

fession on novel lines. Germany was the first to initiate workingmen's insurance and the care of the poor, and naturally in the starting and development of this system the physician was a necessary factor. Without his coöperation the plan would have been unworkable. At the recent International Congress on Hygiene and Demography at Washington, Dr. Frederick Zahn, of Munich, read a remarkable paper in which he discussed the results of workingmen's insurance. He pointed out that in Germany there are now in round numbers 13,000,000 persons insured against sickness, 15,000,000 against invalidism and old age, and 24,000,000 against accident. Nearly \$1,918,500,000 has been expended for workingmen's insurance in the period between 1885-1909 and nearly \$450,000 daily to the advantage of those insured. By reason of this, results have been accomplished in sickness, accident, disability and old age, and these also come to the share of the family. According to Dr. Zahn, the workingmen's insurance in Germany has straightway become the foundation and corner stone for preventive social hygiene. Whether, however, the system has been of benefit to the medical profession generally in Germany, Dr. Zahn does not state and in fact opinions on this point are considerably divided. The situation in Europe really is this, that workingmen's insurance in one form or another was bound to come, and that the only course open to the medical profession was to make as fair terms for themselves as possible. On the whole, in Germany this has been effected and the medical profession is fairly well satisfied. In Great Britain, the medical profession was not treated fairly, its members refused to coöperate and a deadlock has ensued. This does not mean that an insurance scheme will not be evolved, for medical men in Great Britain believe in the principle of the bill, but that they refuse to participate until they obtain what would be termed here a "square deal."

It is impossible to discuss preventive medicine without referring to the conditions in Europe and to the workingmen's insurance schemes, for it is in Europe that preventive medicine had its beginning and has seen its greatest development, of which the insurance system is its essential and furthest advance.

In this country, in some respects preventive medicine has hung

fire. Up to a comparatively recent date public health matters have not been treated so seriously as in parts of Europe, the strongest evidence of this being the greater prevalence of typhoid fever on this continent. Of recent years the public conscience on public health questions has been greatly aroused, and, as is always the case here, things have moved very rapidly indeed. For instance, the reforms introduced into New York City by the wise and energetic action of its splendid Health Department and their results read almost like a fairy tale. New York has been transformed in a few years from what almost might be termed an unhealthy city into an object lesson to all countries. The statement may be made without laying the writer open to the charge of exaggeration that New York City at the present time, when its overcrowding and general housing conditions and the nature of its cosmopolitan population considered is without a peer, so far as its public health administration is concerned, among the nations of the earth. Chicago again is another striking example of what a fearless and efficient Health Department can accomplish, and other large American cities come in the same category.

The editor of this journal, therefore, observing, as all medical practitioners throughout the country must observe, the trend of circumstances, has thought it fitting to publish a number devoted solely to preventive medicine. He has been fortunate enough to obtain papers relating to public health from men whose names are household words, and although these papers by no means cover the whole field, sufficient material of a high order is offered to provide a feast of reason and a flow of soul for those interested in the question.

Dr. Philip, of Edinburgh, who is a pioneer in methods of dealing with tuberculosis, and who by his success in carrying these methods into practice has made of Edinburgh a Mecca for those who are desirous of learning how he has brought about these results, contributes a paper on tuberculosis in childhood. His conclusions on the prevention of tuberculosis in childhood, the time be it noted when it is most essential to prevent the disease, cannot but act as a stimulus to all those who are concerned in its prevention.

A paper very significant of the state of medical and even of



public opinion at the present time is by Dr. George J. Adami, of Montreal, in which he makes a vigorous and earnest plea for the enactment of measures whereby the spread of venereal diseases may be controlled. He points out that in Australia steps have been taken already with this end in view, and the Board of Health of New York is dealing with the matter. It goes without saying that the prevention of the spread of venereal diseases is a question which ultimately concerns the community. So long as regulations with regard to the dissemination of venereal diseases are lax, just so long will diseases of all kinds be rampant in the land, for it is known that to venereal diseases most serious maladies owe their origin or development. That the community generally is beginning to take an intelligent interest in the matter and beginning to lay aside the prudery which has been always the greatest obstacle in the way of dealing with venereal diseases effectively, is the most hopeful phase of the situation, and a paper like that of Dr. Adami is an educative factor of great force. The saving of infants' lives is, after all, the most important branch of preventive medicine, and in the best modes of bringing about these results America has much to learn from Europe. It is acknowledged on all hands that breast feeding is a *sine qua non* in the successful uprearing of infants, but owing to ignorance and other causes which are always present in an industrial district, this natural means of nourishing the young has largely fallen into disuse. Of course, the working classes are here referred to, for the neglect of breast feeding among the well to do is due to no reasonable or even plausible reasons, and is, to put it bluntly, a sin against the race. Dr. Eric Pritchard, in his illuminating paper, explains the great work he began and has carried on with so great success in Marylebone, and which will doubtless provide engrossing reading to American physicians. Dr. Helen MacMurchy has sent a pithy little paper on breast feeding, which is the complement to that of Dr. Pritchard. Another paper of the highest significance is by Dr. Z. L. Straw on medical inspection of school children, in which he explains most clearly and fully all aspects of this necessary routine in the bringing up of a healthy race mentally and physically.

A paper of all round interest is that by Dr. Chas. A. Hodgetts,

for, although it chiefly treats of Canadian matters, these are so similar in many regards to those of this country, that much of the paper might have been written concerning the United States. The movement of the population to cities is going on to nearly the same extent in both countries with the consequent degeneration, mental and physical, of the race, and the immigration problem confronts the sanitarians of both countries in much the same sort of way. It will be observed that Dr. Hodgetts favors the establishment of a Federal Department of Health for Canada.

Dr. George D. Porter's paper on tuberculosis and the public is a vigorous presentation of the tuberculosis situation in Canada, and contains many points worthy of close attention. His remarks with regard to patent medicines and consumption cures, most of which, by the way, are imported into Canada from the United States, are very much to the point. He does not mince words when he says that most of these consumption cures contain opiates or alcohol in large quantities, and that persons had better spend their money on good nourishing food than on alcohol and dope.

The paper by Dr. E. W. Mitchell, entitled "Public Health and the Young Doctor," is peculiarly applicable to conditions as now found in this country, and his conclusions as to the position of the medical man under the sway of preventive medicine are sane and reasonable, and may be recommended to the earnest consideration of our readers. He believes that in the long run all will work for the best both as regards the community and the physician himself.

Dr. Frank Woodbury has a forceful paper on the care of the indigent insane, a problem that is forcing itself on the attention of the medical man and general public more and more every day. Statistics from all countries and from industrial countries especially seem to show that the feeble minded, defective, and insane are increasing by leaps and bounds, and how to prevent this increase is a matter of national moment.

The address of Ernest J. Lederle, Ph.D., Commissioner of Health, New York City, deals with control of milk coming to the city. No one will dispute his argument that in order to insure a pure product to consumers, absolute control of the source of supply, the

dairy, transportation, handling after it reaches the city, etc., by municipal or State authorities is necessary. New York is fortunate in this respect because of its efficient City Health Department.

To sum up, preventive medicine in this country has not as yet gained the hold that it has gained in some European countries, but all signs tend to point to the fact that it will soon develop with great rapidity here. Consequently, medical men should be learning to adapt themselves to the new conditions. Possibly, nay probably, so many physicians will not be needed, but those who enter the medical profession under the coming régime will have to be thoroughly trained for their duties, for inefficient men will have no chance of surviving the ordeal. The man in the street is commencing to appreciate the fact that a capable public health service does diminish sickness, decrease mortality and prolong life, and when the community at large is educated to this point, as it is being educated, and fully recognizes the truth of the axiom *salus populi suprema lex*, then preventive medicine will have come into its own. The future of preventive medicine is bright while its scope is all embracing.

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#### DEATH OF MRS. STARKEY, WIFE OF THE PROFESSOR OF HYGIENE AT MCGILL UNIVERSITY

At the closing meeting of the Canadian Public Health Association in Toronto, on the 18th of September last, an announcement was made that saddened all present. The Chairman stated that he had just received the news that Mrs. Starkey, wife of Dr. T. W. Starkey, Professor of Hygiene at McGill University, had died somewhat suddenly. Dr. Starkey was known to and popular with all the members of the Association, had been its first president, the previous year, and sympathy was felt for him for these reasons. But there were some present who sympathized with him and his little son for even more personal reasons, for they had known Mrs. Starkey. To these the news of her death came as a shock. She had endeared herself to all who knew her whole hearted kindness and ready sympathy. The Canadian Public Health Association moved and passed a resolution tendering to Professor Starkey their sympathy.

## DIGEST OF CURRENT MEDICAL LITERATURE

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*The International Congress on Hygiene and Demography at Washington.* This the fifteenth International Congress on Hygiene and Demography was opened at Washington on September 23d under generally favorable auspices. Most of the fates were propitious, but Pluvius, the rain god, veiled the sky with clouds and poured forth water with unsparing hand. That is to say, from the beginning to the end of the meeting it rained almost without intermission. Of course, in most respects the inclement weather was a great drawback. The only point in its favor was that as the delegates were unable to be outside with any pleasure they attended the sessions in greater numbers than otherwise might have been the case.

The attendance was enormous; there were said to be present for the Congress 3,000 delegates, twenty eight nations being represented. Also, as a matter of course, each nation was represented by its most renowned leaders and teachers of hygiene and demography, the consequence being that never perhaps before in the history of the world has been gathered together in one place so many men eminent in the study and practice of preventive medicine. The German contingent was the largest by far, for not only were the official representatives more numerous than those of other countries, but a large number of what may be termed unattached delegates, most of them men of note, were present. The Germans likewise took an active and prominent part in the reading of papers and from all points of view occupied a foremost position. France was well represented officially, both as regards quality and quantity, but outside the official delegation few Frenchmen were present. Great Britain was fairly well represented, although not so fully perhaps, as the reputation of that country as a pioneer and leader in public health matters warranted. Nevertheless, Great Britain sent some very distinguished men who ably upheld the fame of their native land. Austria-Hungary sent an adequate delegation, some of whom were men whose names are household words. Belgium sent a large number of representatives and the Scandinavian countries, Denmark, Sweden, and Norway, were well to the front. Italy was represented by a small but select band. A feature of the meeting was the showing by the South American States or rather countries. Canada, Australia, and the British West African Colonies sent delegations. The Universities of the world sent some of their ablest sons, those of Great Britain in particular being conspicuous both in numbers and in eminence. Needless to say that

the United States shone in every department, practically all of her great public health and most of her well-known scientific men attending and many taking an active part in the meeting.

Before considering the Congress in detail, or lavishing upon it or rather upon those responsible for its control and management, the praise which is undoubtedly their due, it may be better to make a few criticisms of the blemishes evident at the meeting. In the first place, the Congress, as might be expected from the enormous attendance, was somewhat unwieldy. The buildings in which the meetings of the sections were held were hardly sufficiently centralized. Consequently there was some confusion as to meetings of sections. Another feature to be criticised was the congestion of papers, so many indeed were contributed, that a considerable amount of difficulty was encountered in providing time in which to read them. Not infrequently papers had to be left over to be read at the next meeting, and speaking generally there was decidedly more papers than was compatible with an adequate consideration of them. It is well understood that without discussion, a meeting tends to be somewhat tame; to rob it of discussion is to rob it of its chief merit; in short, discussion is the salt of a meeting, and without this salt a meeting loses something of its savor. This was the more to be deplored in that with admirable foresight the management had provided for satisfactory discussion in a manner which had never been before provided at any Congress of a scientific character. Books of abstracts of the various papers to be read were printed in different languages, and what is especially to the point were published and ready to be given out before the first session. This was really a great achievement, and it seems a thousand pities that owing to the lack of discussion their *raison d'être* was almost wholly nullified. Undoubtedly these books were intended mainly for the use of those who were desirous of discussing papers and who might by their aid obtain the pith of the arguments contained therein, and thus criticise them intelligently.

However, on the whole the Congress was a great success. No more beautiful city could have been chosen for its meeting on this continent and probably not in the world than Washington. Nothing could have exceeded the politeness and courtesy of all the officials. The writer was particularly struck with the eager willingness of the ladies at the Bureau of Information in the Pan American Building to do all in their power to answer the many questions which were volleyed at them continually and persistently throughout the livelong day. No trouble seemed too great for these long suffering ladies, and the writer is glad to avail himself of the op-



portunity to express in print his gratitude for the unfailing courtesy and kindness with which he was treated at the Bureaus of Information. Possibly, the outstanding feature of the meeting was the distinction conferred upon it by the active personal interest taken in its proceedings by the President. This is the first time that a President has taken such an interest in a gathering of scientific men, and Mr. Taft may rest assured that his action was highly appreciated by the delegates and especially by the foreign delegates. On the morning of September 23d, Mr. Taft made the journey from Beverley to Washington for the purpose of opening the Congress. In his eloquent and practical opening speech he showed that he thoroughly recognized, as indeed do the intelligent rulers of all countries, the vast importance of public hygiene, that is, preventive medicine. In his speech Mr. Taft gave evidence of his recognition of this by delivering the most momentous pronouncement on the subject as yet made by the leader of any nation. He declared himself in favor of the creation of a national department of health, and, moreover, offered the eminently practical suggestion that probably this result might be best brought about by an amplification of the powers of the very excellent Public Health and Marine Hospital Service. But not only did the President evince his interest in the Congress from the practical standpoint, but he also exerted himself to make of it a success from the social point of view. On the afternoon of September 23d, the President gave a reception at the White House to the delegates and lady visitors to the Congress. Some 3,000 persons attended this reception, and one and all enjoyed the unaffected geniality with which they were received by President and Miss Taft and the hospitality meted out to them. A reception was given to the delegates and ladies of the Congress at the Pan American Union Building on the evening of September 23d. On the evening of September 26th a reception was given by the citizens of the District of Columbia to the delegates and ladies of the Congress at the New National Museum. Various sight seeing trips had been arranged, including two down the Potomac and to Mount Vernon. The hospitality of the United States Government and of the citizens of Washington was freely extended to the delegates, and went far to render their visit a red letter episode of their lives.

Before entering upon the more serious business of the Congress, it may not be out of place to express admiration for the beauties of Washington, natural and artificial. Of the many magnificent buildings to be seen on every hand none was more striking than the headquarters of the Congress, the building of the Pan American Union.

It goes without saying that with so vast a program to discuss, many interesting and instructive subjects must be left out. The endeavor will be made to choose the papers of outstanding merit or interest and deal with them briefly. The most important subject on which papers were read and addresses given was that of diseases of occupation. On the evening of September 23d, Sir Thomas Oliver, of Newcastle-on-Tyne, England, gave an address on dust and fume. Newcastle is the center of the great northern coal fields of England, and Sir Thomas Oliver is the acknowledged authority on all that concerns the health of coal miners and the sanitation of mines, and, therefore, his address was peculiarly illuminating and valuable. Among other notable remarks made by the Newcastle professor was that since the advent of the automobile and macadam roads in Great Britain, the foliage was disappearing from trees bordering on these highways, the bullfinch and other song birds had been killed off, and even the fish had forsaken the streams which run near such highways. But although dust and fume have their obviously bad features, the speaker pointed out that their effects are not all bad. For instance, owing to the widespread prevalence of dust and fume in Great Britain, its inhabitants have become a well washed people. The most important part of Sir Thomas Oliver's address was that which dealt with explosions in coal mines, for he was able to announce the discovery of a chemical fluid which by acting as an absorbent on coal dust, will prove a practical preventive of explosions, which by the way are caused by dust. In this section a paper was read by Dr. Clarence John Blake, of Boston, on the deleterious effect of unnecessary noise according to the author, a great part of the noise incident to the mechanical operation of modern life, especially in community centers, being avoidable. Therefore, the suppression of unnecessary noise is advisable for economic reasons, both in the safeguarding of the human machine and in the saving of wasted mechanical energy, of which the noise is an evidence; a saving of waste in two directions. Several papers were read on caisson disease, the conclusions generally reached being that Dr. Haldane's stage decompression method prevents fatal cases and provides safety for divers in 210 feet of salt water, or  $\pm 92.4$  pounds. This method consists of never permitting the maximum air saturation of the body on decompression to be higher than 2.3 times the pressure in the air lock or than the atmosphere on emerging. This permits a quick drop to half the absolute pressure on entering the air lock, which accelerates the desaturation of the body much more quickly than the uniform method of decompression. The two chief papers read on this sub-

ject were by Mr. Henry Japp, of New York, and Dr. Herman von Schrötter, of Vienna. Injuries caused by electricity were discussed in a paper read by Sir Thomas Oliver, Newcastle, England. Injuries caused by electricity can hardly be regarded as burns, since they are not wholly due to extension from the surface, but to internal heat. As a result of experiments carried out by the author the conclusion was come to that in most instances death was due to arrest of the heart's action.

The accidents and diseases of ironworkers were treated at length by Dr. Frederick Röpke, Solingen, Germany. According to the author of this paper, the largest percentage of the accidents falls on the workmen employed in the raw iron manufacture. The percentage of diseases is considerably higher among the workmen of the raw iron industry than in the small iron industry. Dr. Röpke points to the State, the community, and the employer as all having the same interest at heart to keep the iron worker in good health. Much can be done by educative methods, but of the greatest importance are all protective measures against the injurious effects of dust, gases, and vapors. The guiding principle here is: dust or gases must be rendered innocuous at the place of their origin, their entrance into the working room.

Drs. E. W. Hope and W. Hanna read a paper on industrial anthrax at Liverpool, pointing out its nature, its origin, its incidence and the preventive measures in force in England.

An important paper was read by Dr. L. v. Frankl-Hochwart, of Vienna, on the occupation neuroses. By occupation neuroses is meant a disturbance of the muscular innervation, which only sets in after a complicated activity of the muscles acquired by practice, while the muscles in every other action obey the will. The differential diagnosis comes into consideration in a large number of the nervous diseases, viz., the cerebrospinal diseases, the "tremores," tic, chorea, certain neurasthenic hysterical conditions and intoxications. The above mentioned conditions are frequently confounded with professional neuritis, with true neuralgias, paralysis, atrophy, as observed after habitual monotonous work. Differential diagnosis is of special importance in angioneurosis, in dysbasia angiosclerotica, and in local diseases of the muscles, joints, tendons, and periosteum. True neurosis is mostly observed in men between the ages of twenty and forty years. As etiological factors one must consider the nervous heredity, the neuropathic diathesis, insufficient alimentation, alcoholism, and nicotinism. Professional overwork is one of the main factors, depressing conditions of life, and the effect of fright also predisposing factors. The symptomatology is best

observed in the most frequent and most important neurosis, in writers' cramp. One must differentiate between four forms: 1. The spastic; 2. The paralytic; 3. The tremor like; and 4. The neuralgic. Those whose professional occupation is drawing and painting, and the stenotypists also, acquire the disease in the same manner as the copyists. Quite frequently one observes neurosis of the upper extremity in musicians. To this group also belong the different varieties of the vocal disturbances of speakers and actors, and of officers, caused by habitually giving orders in a loud voice, and the neurosis of the voice caused by singing. Cramps are also observed in seamstresses, tailors, and persons engaged in similar occupations; in barbers, in people who handle heavy hammers, in those who milk cows, in typesetters, in telegraphers, in cigar makers, in waiters, diamond cutters, cashiers, chauffeurs, etc. Sometimes, similar conditions are observed in the lower extremities, for instance in dancers, in those who while working use only one foot to turn a wheel, such as lathe workers, scissors grinders, bicyclists. Prognosis is not absolutely bad, but always doubtful. Recurrences are frequent. Everything which strengthens the individual psychically and physically will tend to prevent the neurosis. It is important to exercise the muscles in some way other than the habitual one; it is also important to insure instruction in manual work to prevent improper working habits. Overwork is also harmful, especially in early youth. The most important points in treatment are: Cessation of all work which provokes the cramp, the adoption of general measures which have a beneficent effect on the general health: hydrotherapy, radiotherapy, electrotherapy, gymnastics, massage. In several instances writing apparatus was constructed; practical exercises in writing under the instruction of experts are important, also psychical reëducation; after all, psychotherapy seems to be the main factor in the treatment of this disease.

On the evening of September 24th, Dr. Jacques Bertillon, Chief of the Bureau of Municipal Statistics, Paris, and a brother of the Bertillon who devised the well known methods for detecting criminals, gave an address on mortality and causes of death by occupation. By means of close investigation Dr. Bertillon has found that those working on the land are the most healthily occupied class of workers. The least healthy persons are those engaged in the liquor trade. In the professions exposed to the changes of the weather, Dr. Bertillon pointed out that all causes of death are frequent, but that liver diseases are less frequent than one might imagine, since alcoholism is very common. Diseases of the respiratory system are rare in all professions the work of which is performed in confined

places; clerks in railroad offices are the only ones with whom phthisis is rare. Priests and professors separate themselves from the other liberal professions by the rarity of liver and kidney diseases among them. He added, we will be surprised to see, these diseases so frequent in England in professions that one would believe safe from intemperance. He compared by countries the mortality of each profession to the average mortality of the country. When mortality in a profession is less than the general average during youth, and on the contrary exceeds the average at mature age, and when those same results were found in several tables, he concluded that this profession is injurious to health.

Industrial plumbism was dealt with in a paper read by Dr. Alice Hamilton, Special Investigator U. S. Bureau of Labor, Chicago. She said in part that a comparison between the lead trades in Europe and in the United States in respect to the dangers of industrial lead poisoning among the working people brings to light many differences, some of which are advantageous to the United States, some to the contrary. Among the former is the fact that certain dangerous lead trades in Europe are not lead trades in the United States; for instance, file making, jewel polishing, the making of cheap earthenware. Another point in favor of the United States is the increasing use of lead substitutes. Aniline dyes are beginning to supplant chromate of lead in textiles, wall papers, artificial flowers and paints; art glass is usually finished with acid instead of lead powder; the sulphate of lead has largely taken the place of the basic carbonate in the manufacture of rubber, and is used more and more as a substitute for white lead in the manufacture of paints. These substitutions or adulterations may not always be creditable commercially, but they are less dangerous to the workman. There are not nearly so many women employed in the lead trades in the United States as in Europe, nor are there as many boys. The advantages, however, are more than offset by an ignorance of the hygiene of the lead industries in the United States, such as is not seen in any of the northern European countries, and an almost complete lack of legislative control. There is no legislation in the United States, except in Illinois, which obliges the employer to remove poisonous dust or to provide adequate equipment for personal cleanliness. The results of the admirable legislative control in Europe, on the one hand, and of lack of legislative control in the United States, on the other, can be shown by statistics gathered in a few lead trades which have been extensively studied, viz., the making of white and red lead, of pottery, of glazed tiles, and the porcelain enameling of sanitary ware.



Dr. H. Linenthal, State Inspector of Health, Boston, Mass., in a paper read by him concluded as follows: To protect the workers from the ill effects upon their health from industrial processes, or unsanitary conditions the following measures should be adopted: 1. To collect complete and accurate data about industrial processes and about conditions under which the various industries are carried on. 2. To obtain more accurate and detailed information relative to occupation on morbidity and mortality records. 3. To instruct the medical student in this important field of preventive medicine by a course of lectures on the more important industrial processes and the diseases to which they give rise. 4. To place the specific industrial diseases on the list of the diseases notifiable to the central health authority. 5. To examine periodically all workers in certain industries which are designated by the central health authority as injurious to health. 7. To have adequate laws regulating sanitary conditions and protective devices in industrial establishments and to have such laws intelligently enforced. 8. To have the central health authority issue regulations for certain dangerous trades with instructions to employers and employees how to guard themselves against the ill effects of their work, and to have such instructions posted in the work rooms. 9. To carry on an extensive educational campaign both among employers and employees as to the value of protective measures and good sanitary conditions.

On the evening of September 25th, Ministerialrat, Dr. Zahn, Director of the Bavarian Statistical office, Munich, gave an address in which he declared that the conservation of the energy of women is the greatest problem before the world. In this connection he upheld the national workingmen's insurance legislation as one of the best means a nation can employ in conserving the energies of its working force.

Dr. Max Rubner, of Berlin, one of the greatest living authorities on nutrition, announced at a meeting of the general session that the dread of hunger is a factor of the utmost importance in the development of socialism.

The section devoted to child hygiene brought forth the greatest number of papers, and perhaps on the whole produced more valuable information than did any other section. A most interesting paper relating to infant mortality, which really came in the section on industrial diseases, was read by Dr. George Reid, Medical Officer of Health, Staffordshire County, England. It dealt with infant mortality in relation to factory labor. Dr. Reid said in part that among the contributory causes of excessive infant mortality, it is difficult to assign to each its relative share in the sum total. It

has been, however, proved conclusively that to improper feeding, the result of ignorance, poverty, or adverse domestic circumstances, must be given a prominent place among the factors, and it follows that causes which tend to increase the number of artificially fed children in a community must increase the rate of mortality unless the causes in question incidentally improve the chances of survival in other respects, and so wipe out the effect of the added risk attributable to improper feeding. Applying this argument to artisan communities similarly circumstanced as regards domestic and hygienic conditions generally, but differing in respect of the facilities which the trade of the district affords for women, employment which takes mothers away from their homes in the day time, and thus adds to the proportion of artificially fed infants, one would expect to find that the infantile mortality in the latter group would exceed that in the former. Dr. Reid has had peculiarly favorable opportunities for studying the conditions of these two groups and has found that where the mothers work in factories the mean infantile mortality exceeds that of the districts where they do not thus work by 28 per cent.

Among the many very excellent papers read on the hygiene of childhood, Dr. Helen MacMurchy's paper on medical inspection of schools may be singled out for special notice. Dr. MacMurchy pointed out, among other things, that medical inspection of schools dealing with each child personally, tends to impress on us the individuality of each child and directs attention to his endowments of strength, special senses, etc. We are always trying to deal with human beings as soldiers, lawyers, children, women, Chinamen, or something less than human beings. The man or woman who is dealing with human beings as such, the teacher, is doing the highest kind of work.

Another very good paper was by Dr. Janet Claypon, Kings College for Women, London, England. Dr. Claypon discussed the organization of the work of infant consultations and health visitors, while Miss Ellen C. Babbitt, of New York City, read a paper on the care of the expectant mother. This movement, which has been in vogue in Europe for some considerable time, has but recently been initiated in this country. Dr. Woods Hutchinson, who gave a popular lecture in the building of the Hygienic Exhibition, made the statement that a young child should be allowed to eat what it liked, as much as it liked, as often as it liked, and to do as it liked almost in every respect. He argued that the child was the best judge of what was good for it, or otherwise.

Perhaps the part of the meeting which was productive of the

most important results was the symposium on poliomyelitis. Dr. Alfred Pettersson, of Stockholm, Sweden, who together with Professors Karl Kling and Wilhelm Wernstedt, has been making careful investigations with regard to infantile paralysis for about a year, announced that the disease is spread by means of the secretions of the nose, wherein the virus is contained. This discovery appears to vindicate Flexner's theory that the disease is communicable from person to person through the upper air passages or that the virus leaving one person may be transmitted by the agency of dust and wind. This view, however, was disputed by Dr. M. J. Rosenau, of Harvard University, who claimed that the bite of the stable fly is the mode by which the infection is spread. Dr. Pettersson and colleagues have had exceptional opportunities for studying the disease at close range, there having been recently in Sweden a most devastating epidemic of infantile paralysis. Moreover, the method of dissemination by the excretions of the nose appears to be more consonant with our present knowledge of the malady than its spread by the stable fly.

Another very important discovery was announced by Dr. Frederick Novy, of the University of Michigan, who stated that he had isolated a microörganism of so deadly a character that it will kill rats when fed to them in infinitesimal quantities. If this deadly germ can be fed to rats infected with bubonic plague, its discovery may prove an inestimable boon to mankind. As yet its value has not been determined, and thus its place in preventive medicine is uncertain. Drs. John Anderson and Joseph Goldberger, of the Public Health and Marine Hospital Service, announced two discoveries, that sneezing is the cause of the spread of measles, and that typhus fever is conveyed by insects. Also these two men of science announced that for the first time known they had been able to inoculate animals with measles.

The papers read on infectious diseases were of the greatest interest, and possibly on the whole of the greatest importance, as there is no more pressing problem to be solved in this country than the eradication of typhoid fever. An interesting announcement was made by Dr. Herbert D. Pease, of New York City, who declared that oysters in their raw state during their nonhibernating period, from the middle of November, are not carriers of disease, and at other times never carry diseases other than typhoid fever and some intestinal diseases. A morning was given over to the discussion of the paratyphoid and paratpyhoid like bacilli, but although papers were read by such authorities as Dr. J. C. Ledingham, Lister Institute, London, England, Prof. Dr. Victor Babes, Bucharest,

Roumania, M. Le Dr. Sacqu  e, Professor au val de Grace, Paris, France, Dr. John Torrey, of New York, no definite conclusions were reached as to the differentiation of the so called paratyphoid group.

The pollution of railroad beds, railroad construction camps, clothing and other like agencies for the dissemination of diseases were dealt with by some of the world's authorities. Dr. C. V. Chapin, of Providence, R. I., read a paper setting forth his views that aerial infection is almost a negligible quantity in the spread of disease and that consequently our methods of prevention must be considerably revised. However, Dr. Chapin's theory was disputed, that is, it was argued that although in past times the significance of the air as a means of propagating disease has doubtless been exaggerated, that Dr. Chapin had gone to the other extreme in denying that it was a factor of any importance. Race suicide and eugenics were subjects to which great attention was given, and as may be imagined the theorists on both sides eagerly debated the question with more enthusiasm than moderation. As an example of the views of the most ardent eugenicist, Dr. Bleecker Van Wagenen, of South Orange, N. J., declared that among the many recommendations made to a committee on eugenics, of which he is the chairman, was the practice of polygamy, the segregation of the defectives, stricter marriage laws, and the eradication of social diseases. Dr. Yandall Henderson, of Yale University, made the one announcement which was received without demur: that soap is the greatest civilizer of mankind. Although Sir Almroth Wright has been bold enough to state that washing is not necessarily healthy, yet he would scarcely go so far as to aver that it is not esthetic and in keeping with the customs of the highest civilization. At any rate, of all the 3,000 delegates who attended the congress no one disputed Dr. Henderson's assertion.

The section on tropical diseases provoked some of the most instructive discussions of the entire meeting. Dr. Harold Seidelin, of the School of Tropical Medicine, Liverpool, England, claimed that he had discovered a specific yellow fever parasite and further stated that yellow fever still exists in the Panama Canal Zone, and will probably never be wholly stamped out. Both these statements were combated by American military and Public Health Service tropical authorities, who doubted the discovery of a specific yellow fever parasite and stoutly denied that yellow fever still existed in the Panama Canal Zone. A Health Exhibition held in connection with the Congress was well arranged and attracted a very large number of visitors. A portion of the Exhibition also gave rise to a heated discussion. There seems to exist at the present time a sentiment or a feeling stronger than a sentiment, than sex hygiene should

be widely taught, and that the public and the rising generation should be instructed concerning the menace of venereal diseases. Accordingly there was held at the Exhibition an exhibit giving instruction in venereal diseases and illustrating the dangers of the same by some somewhat gruesome specimens of the hurt wrought to the human system and anatomy by syphilis. Dr. Ira Wile, of New York, denounced this exhibit as a chamber of horrors, demanded that it be closed, and denied that it exerted a salutary educative influence. Some agreed with him, while others of course did not agree with him. It is indeed a moot point as to whether the effect of such exhibits is good or not. Those responsible for the collection of literature diagrams and specimens forming the exhibit doubtless were of the opinion that it would prove an educative force from the deterrent point of view, that it would strike fear into the hearts of the majority of those who viewed it. On the other hand, the opponents of such exhibits argued that its educative influence would be nil, and that it would merely appeal to that morbid curiosity which is inherent in all human beings, and that it would prove no more than a show to most of the visitors.

Taken all in all, the Congress just over was a success. It was barren or almost so in the announcement of great discoveries, but it demonstrated its value in that it taught and drove home the great lesson that the next step is to apply the knowledge which has been already gained. The Congress adjourned without any decision having been come to regarding the next place of meeting. However, there was a strong undercurrent of sentiment that the next place of meeting should be St. Petersburg. One of the most distinguished delegates present at the Congress was Simon de Unterberger, personal envoy of the Czar, and one of his physicians. Dr. Unterberger was anxious that the meeting should be held in St. Petersburg, but as no official invitation had come from Russia, the matter had to be left in abeyance.

Among some of the important resolutions adopted was the following: Approval of the proposition from the section on microbiology and applied parasitology, that an international committee be appointed whose work shall be to bring about international uniformity in methods of classification of the different organisms of the colon bacilli. Mention was made above that the discussion of paratyphoid bacilli had had no practical result. This, however, was hardly the case, as the appointment of an international committee on the colon bacilli should lead to results in the differentiating the various germs said to be responsible for typhoid and paratyphoid infection, or to classify more closely for enteric fever, which embraces typhoid and paratyphoid fevers.



## THERAPEUTIC PROGRESS

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**Wine and Cider in Gout.**—Motaïs (*Bulletin de l'Académie de Médecine*, Paris, July 2, 1912, Abst. J.A.M.A.) reports eight cases of gout in which he tested the effect of wine and cider. The wine used was the red Bordeaux wine, and his conclusions are: 1. That the use, even in moderate quantities, of the red Burgundy or Bordeaux wine, while it may not produce gout in healthy individuals, is likely to be injurious to those predisposed to gout or who are suffering from the disease. 2. A mild cider well made, but not too hard, prevents gout; combined with rational diet and exercise, it becomes a genuine therapeutic agent, diminishing or even reducing the frequency and intensity of the attacks. 3. The attention of therapists should be drawn to the action of cider in gouty affections of the eye. 4. While without doubt the pathogeny of arthritic affections is variable, and such conclusions may not apply to all cases of the disease, yet the author believes that cider should not be merely allowed to gouty patients, but should be prescribed to the majority as a habitual, perhaps exclusive beverage.

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**Tonicity of Mineral Waters.**—Menard (*Presse Médical*, Paris, July 24, 1912, Abst. J.A.M.A.) calls attention to the importance of the molecular constitution of mineral waters which are used for local applications to the mucous membranes. He has made an examination of a large number of these mineral waters, and among fourteen samples he found two whose freezing point indicated a molecular value hypertonic to that of the blood. The rest were hypotonic. He suggests that the hypertonic waters be reduced to the molecular concentration of the blood by dilution with distilled water. On the other hand, the molecular concentration of hypotonic waters can be brought up to that of the blood by the addition of a solution of sodium chlorid.

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**The Urine Just Before Outbreak of a Neurosis.**—Orlowski (*Zeitschrift für Urologie*, Berlin, July, 1912) calls attention to the changes in the urine he has observed in patients on the verge of a nervous breakdown. The curve of acidity of the urine shows a different rise and fall, being lowest morning and night, contrary to the normal decline in the middle of the day. The phosphates also behave differently, and the indican content increases. Orlowski has been studying for years the behavior of indican in the blood in various conditions, and is convinced that the proportion of indican in the urine is an index of low vitality, relaxation of the body, especially of the nervous system. It is thus a practical index of impending nervous breakdown. Even healthy persons, when they feel languid and without much vitality, have indican in their urine transiently. Persons with the paradoxical acidity curve mentioned above often have abnormal proportions of indican in the urine.

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**Gonorrheal Arthritis.**—Heresco and Cealic (*Journal D'Urologie*, April, 1912) report four cases in which the antimeningococcus serum was used. The first was an acute arthritis of the knees following gonorrhea. There was complete loss of function. Fourteen days after the first injection of serum

the patient left the hospital cured. The second case was of acute multiple joint affections, both knees, left shoulder, metacarpophalangeal, etc. Twenty-eight days after the first injection the patient was well. Two other cases are similar. The authors suggest that the injection should be subcutaneous and in the region of the affected joint. They used serum from the Pasteur Institute, and also that prepared by Flexner and Wassermann. The quantity injected daily was between fifty and sixty c.c. The nearer the beginning of the joint affection the more efficacious the result.

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**Treatment of Habits.**—An undesirable habit cannot be inhibited any more than an undesirable disposition, says Atwood in the *Medical Record*, July 27, 1912, but if a patient can be induced voluntarily to substitute desirable responses for the undesirable, a new habit may become automatic after a sufficient number of repetitions. A voluntary surrender of the will, however, is not only highly desirable, but apparently absolutely necessary in order to gain the ascendancy. The tendency is ever to fall back to the old adjustment. The old sensorimotor paths are open, and a very few impulses only are needed to make them as permeable as ever in the presence of actual nervous or mental complications, Atwood cautions not to meddle except under the intelligent direction of some one who thoroughly understands the nervous system.

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**Calcium Lactate in Hemorrhage.**—Van Lier (*Beiträge zur klinischen Chirurgie*, Tübingen, June, 1912) tabulates the coagulating time in forty persons before and after administration of calcium lactate and also in healthy controls. His conclusions are negative as to the value of calcium lactate in prevention or treatment of hemorrhage.

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**Irrigation of Quinine for Acute Gonorrhea.**—According to A. E. Mowry, M.D. (*Old Dominion*, September, 1912), of Chicago, bisulphate of quinine, 1 to 3,000 to 1 to 1,500 solutions as an irrigation daily will cure at least fifty per cent. of acute gonorrheal urethritis in two weeks. It is less irritating than permanganate of potash solutions, is anesthetic, tonic and withal strongly antiseptic. In preparing this solution, it is best to dissolve the quinine in a glass of very hot water and then add this to the irrigating syringe filled with warm water. If for any reason there is still a residue, the solution should be filtered.

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**For Autointoxication.**—A saline laxative, fasting two or three days with an abundance of water, will cure most cases of autointoxication and save the vital organs, such as the kidneys, from unnecessary irritation by the use of gastrointestinal antiseptics.

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**Heat Diminishes Intestinal Peristalsis.**—In cases of dysentery and diarrhea, the food and drink should be given as warm as can be comfortably taken by the patient.

## AT YOUR LEISURE

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### THE IDEAL LIFE

He was a young man, just entering upon the serious period of life; passing from the dependent to the independent; from that period of life when most of his actions had been determined for him by parent or teacher, to the joy of self-support and unrestrained activity. Life lay spread out before him, a beautiful picture, iridescent and scintillating with the brightest of hopes, in the realization of which he would forge a chain, each link self-fashioned, the whole to reflect his power, mental and physical. No ambition—and he had many and various kinds—should remain unsatisfied. He was well equipped for the struggle, perfect health, with all that the University could teach him, for he had been earnest in his search for knowledge—good social connections, manly and good to contemplate by friend or acquaintance, a moderate competency, and with these accomplishments, the world before him, he had said: I will.

In due time this man became a shining light in commercial circles; being active, clear-headed, and shrewd, he amassed a fortune, became the head of a National Bank, President of the Board of Trade, as well as of a prominent club in his city.

He had married young, a worthy woman who had social position and some wealth. Children came, a boy and a girl, bright, healthy children, who gladdened the lives of their parents. This couple were much in society, entertained, if not lavishly, at least bountifully, had a host of good, warm friends; were fond of art and literature, patrons of numerous art societies; frequented literary circles, attended the opera and theater, gave freely to charity, and were as happy and contented as any of their fellows. In time his hair became gray, but this only accentuated the distinguished appearance and poise of the stately and dignified successful business man and financier. The children married well and happily. A grandson came to bear his grand-sire's name and share his wealth. Here the subject of our sketch confided to an intimate male friend and associate, friend from boyhood: I have.

Years came and went, winters and summers became parts of past histories, until we find this man advancing in years. He is still in good health, active, popular among his friends; has retired from business; travels much, patronizes art and literature; lives on a country estate surrounded by all that heart could wish or wealth bring. Time has been good to him. His wife is even more charming and admired than when younger. Numerous grandchildren, healthy, robust and well dispositioned, help much to bring smiles and a full measure of sunshine into his, their home. No worthy object of charity or one worthy of help or encouragement is refused a courteous, kindly audience and wise counsel. The son has succeeded his father in business, is prominent in social life, has a host of warm and congenial friends; is almost a model man, husband and father.

But time which has brought so much to our friend has seen fit to lay his heavy hand upon him in the very glory of his life. He is stricken at seventy, the psalmist's three score and ten, the sum of human life, and no hope is given him. Family and friends are solicitous and constant in their ministrations. With a calm countenance, a still warm heart and a complacent fortitude he accepts the inevitable. Surrounded by wife, children, and chosen friends, the end peacefully comes, comes in the spring, when the world is bright, the flowers in bloom and while the birds are singing their sweetest songs; the sun just emerging on the eastern horizon, bringing again the message of joy and the blessing of renewed life. Holding by the hand his wife, his comforter and sharer of his all, he smiles and beckons her to come closer, to lay her face beside his and whispers into her ear again the old, old story told her fifty years before; the story as old as time and yet to every heart more new and sweet than could ever have been told before, ending with the last kiss and the words: I have had.

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#### WHAT LINCOLN DID

One more note of my father's I must give, a summary in Mr. Nicolay's own handwriting, made when writing had become well-nigh impossible for him, of what Lincoln, his dearest friend and greatest hero, achieved and died for, says Helen Nicolay in the *September Century*:

Turned his defeat for the Senate into a success for the Presidency.  
Took into the Cabinet his rivals, and made them his ministers and servants.

Conquered the Rebellion.

Liberated the slaves.

Outwitted all the intrigues against him in Cabinet and camp.

Gave his implacable rival the Chief Justiceship.

Disarmed all criticism by shouldering all faults.

Consolidated his party and increased his majorities.

Held the people to their great task.

Made the strongest argument for peace and the best defense of war.

Gave in his Springfield Prayer, his Gettysburg Address and his Second Inaugural the most pathetic and eloquent utterances of his time.

Forcible in speech and faultless in logic, he enriched the language with new thoughts, new definitions, new maxims, new parables and new proverbs.

Was a true type and exemplar of his country, his race and his Government.

Wore honor without pride, and wielded power without oppression.

Lived like a peasant by necessity of birth and fortune, reigned like a monarch by right representative instincts, native intellect, the wisdom of humility and love of his fellow-men.

Died a martyr, and was wept by the civilized world.

## MISCELLANY

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### THE USE OF CAMPHORATED OIL IN SUTURE OF OPERATION WOUNDS

Dr. Lampe (*Weiner klin. Wochensch.*, Nov. 17, 1912), in an article read before the Congress of the German Surgical Society, April 12, recommended the application of camphorated oil before incision and during suture. His procedure is as follows: The skin over the operative field is cleansed with a pledget of cotton soaked in ether and then 2 per cent sterile camphorated oil is rubbed in thoroughly. After the incision has been made to the desired depth, the oil is poured in, any excess being wiped off. The same thing is done at the end of the operation before insertion of the sutures. Under this method of treatment it is claimed that healing takes place with scarcely any disturbance. While camphorated oil has but slight antibacterial properties, it is said to act like Peru balsam, by enveloping the bacteria, and also induces hyperemia, thereby stimulating resistance to bacterial activity.

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### THE OATMEAL CURE IN DIABETES

Dr. S. Strouse has a very interesting review of the recent literature on the above subject, which is an important one (*Interstate Medical Journal*, April, 1912). He sums up the general views on oatmeal in diabetes as follows: "Practically all investigators who have tested the cure in a thorough manner, agree that it is most beneficial, especially in severe cases where other means have failed to reduce either sugar output or signs of acidosis. Whether this action depends on any inherent quality of the oat starch is still a disputed point. The *modus operandi* must be considered as yet unexplained; numerous theories have been advanced, but none is supported by actual knowledge. Klotz's researches, if corroborated by other workers, may offer a scientific explanation of the phenomenon.

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### ACTION OF STRYCHNINE AS MODIFIED BY EPINEPHRINE

Mostrom and McGuigan performed experiments bearing on this question in frogs, guinea pigs, and rabbits. They conclude that epinephrine is antagonistic to the paralytic action of strong strychnine solutions on the heart, but that the two drugs have a synergistic action on the spinal cord. Spasms develop more quickly



when epinephrine is given with or before strychnine. Strychnine is antagonistic to the general depression produced by epinephrine, but the latter will not antagonize a strychnine spasm. From these findings there is no indication that epinephrine can be applied with benefit in the treatment of strychnine convulsions.—*New York Medical Journal*.

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#### ABSCESSSED TEETH AND INSANITY

Decayed teeth are a source of pain, producing irritability, loss of sleep, incapacity for work, mental backwardness and finally, upon the authority of Dr. Upson, *Penn. Med. Jour.*, Sept., 1912, who cites an interesting case in substantiating his claim, insanity.

A young man, aged twenty-one, was as a child bright, honest, and truthful. At sixteen he went to work, soon after began to commit robberies, highway robbery and other crimes, and was sent to a reformatory. At home his actions were peculiar; he was irritable at times, flighty and incoherent, and had periods of automatism. He would take the mattress off the bed and sleep on the springs. He was strong, well built, and apparently healthy. Family history was good.

Skiagraphic examinations showed badly impacted wisdom teeth, with abscesses at roots of two molars and one incisor. Removal of the impacted and abscessed teeth relieved the symptoms and finally effected a cure.

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#### NEW JERSEY TUBERCULOSIS LAW

Governor Wilson of New Jersey has recently signed the bill passed by the legislature which is designated the most advanced legislation so far enacted for the control of tuberculosis. It provides that tuberculous patients who refuse to obey the regulations of the State Board of Health as to prevention, and thus become a menace to the health of their associates, shall be compulsorily segregated by order of the courts, in institutions provided for this purpose. If any such patient refuses to obey the rules and regulations of the institution in which he is placed he may be isolated or separated from other persons and restrained from leaving the institution. The law further provides that all counties in New Jersey shall, within six months from April 1, 1912, make provision in special institutions for the care of all persons suffering from tuberculosis within the county limits. Maryland is the only other State which has enacted legislation providing for the compulsory segregation of dangerous cases of tuberculosis,

although in a few of the larger cities this power is exercised under the provisions of the sanitary code.

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#### PURIFIED DRINKING WATER

An excellent method of purifying drinking water is given in the June issue of the *Toronto Health Bulletin*. It is intended, principally, for use in summer resorts, where the water may not be above suspicion, and reads as follows: "Take a level teaspoonful of chloride of lime and rub it up in a teacup of water until there are no lumps. Dilute this with three cupfuls of water and keep this stock solution in a stoppered bottle for use. A teaspoonful of this solution added to a two-gallon pail of water, and well stirred up, will destroy all typhoid and other dysentery producing bacilli in ten minutes, and make the water safe to drink. Get chloride of lime in the pound packages with metallic cases (not cardboard cases). The stock solution will keep for a week." The method has been worked out by Dr. Nasmith and Dr. Graham, and is widely used as a preventive of infection through drinking water.

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#### CONDEMNED FOOD

During the first six months of the present year, over two hundred carcasses of animals, and over three thousand pounds of portions of such carcasses, which had been slaughtered and were to be sold for food, were condemned and confiscated by the Toronto medical health officer. Large quantities of fruit and vegetables were also condemned.

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#### NOTICE

Prof. H. Strauss, of the University of Berlin, will give a lecture, in German, at the New York Post-Graduate Medical School and Hospital, Twentieth Street and Second Avenue, on "Gastric Secretion from the Therapeutic Point of View," on Monday, October 14th at 4 P. M., and at the same hour on Tuesday, October 15th, a lecture on "The Method and Purpose of Dechlorination in Nephritis."

Prof. C. von Noorden, of the University of Vienna, will give a series of lectures, in English, at the New York Post-Graduate Medical School and Hospital, on "New Aspects of the Pathology and Treatment of Diabetes," and on "Diagnosis and Treatment of Nephritis," beginning on Tuesday, October 29th, at 4 P. M., and continuing for four consecutive days, at the same hour.

Cards of admission upon application.

## BOOK REVIEWS

**Principles of Hygiene.** For Students, Physicians and Health-Officers. By D. H. BERGEY, M.D., First Assistant, Laboratory of Hygiene and Assistant Professor of Bacteriology, University of Pennsylvania. Fourth edition thoroughly revised. Octavo of 529 pages, illustrated. Philadelphia and London: W. B. Saunders Company, 1912. Cloth, \$3.00 net.

This book was written to serve as a text book on the important subject of hygiene for the student of medicine; the student of architecture in sanitary requirements in ventilation, heating, water supply and sewage disposal; physicians and health officers in familiarizing themselves with the advances made in hygienic practices in recent years, and a careful reading convinces us that these several objects of the author have been quite satisfactorily accomplished.

Hygiene has only in recent years received the attention it deserves. He that would meet the requirements of the age must become familiar with its advance, for through hygiene and prophylaxis—the prevention of disease—can the greatest good come to man. This work contains all the information needed to a proper knowledge of ventilation, heating, water supply, disposal of garbage and sewage, food and dieting, exercise, clothing, school hygiene, the causes of disease, disinfection, etc. The chapter on food and dieting contains a wealth of authoritative information, extended reference being made also to that most important food—milk.

The work is handsomely printed and bound, and suitably illustrated.

**A Manual of Personal Hygiene.** Proper Living Upon a Physiologic Basis. By eminent specialists. Edited by WALTER L. PYLE, M.D., Assistant Surgeon to the Wills Eye Hospital, Philadelphia. Fifth Edition, Revised and Enlarged. 12mo of 516 pages, illustrated. Philadelphia and London: W. B. Saunders Company, 1912. Cloth, \$1.50 net.

The author of this work declares in the Introduction that "health is man's birthright; that it is as natural to be well as to be born, and that from ignorance and transgressions of physiologic and hygienic laws arise most disease and tendency to disease." It is then obvious that a knowledge of personal hygiene is requisite to health, and this knowledge must therefore be more generally understood in order to insure a virile people. The layman is much inclined to regard hygiene as something to be looked after by the Government, State, or municipality; that it is public hygiene that all this fuss is made about. But of what avail are public protective measures alone. As regards personal habits, the average individual is a law unto himself, and formerly resented suggestions advising change. Recently, however, the people are learning that it is economy in health and happiness to live properly. Much has been done on educational lines, but much remains yet to do. Advance must come from authoritative sources, such as this work of Dr. Pyle and his collaborators.

We have here chapters from authorities such as Charles G. Stockton, on Hygiene of the Digestive Apparatus; of the Skin, by George Howard Fox; Vocal and Respiratory Apparatus, by E. Fletcher Ingals; of the Ear, by B. Alex. Randall; the Eye, by Walter L. Pyle; Brain and Nervous System, by J. W. Courtney; Physical Exercise, by G. N. Stewart; Domestic Hygiene, by D. H. Bergey, whose excellent work on the Principles of Hygiene is reviewed above; Food Adulteration and Deterioration, by Harvey W. Wiley. All medical men need this information, and we know of no work in which it can be found so carefully and authoritatively set forth as in this one.

Paper, print, binding, and illustrations up to Saunders' standard, which means much.

**Making Good on Private Duty.** Practical Hints to Graduate Nurses. By HARRIET CAMP LOUNSBURY, R.N., President West Virginia State Nurses' Association, Sanitary School Inspector for Charleston Independent School District. Philadelphia and London: J. B. Lippincott Company, 1912. Price \$1.00.

Here is a book written for nurses. It contains some thirteen chapters and two hundred pages. It is not only a valuable aid for the nurse, but we think could be read with profit by the physician at his leisure. The book begins with the entrance of the nurse into the home of her new patient, and remains with her until her departure to other fields. The first chapter was so interesting that we read the volume through to the end. The advice as to the nurse's relations to the doctor should be committed by every

nurse. That relating to foods and feeding should be re-read; the one on as a teacher deserves careful thought; the one on obstetrical cases should be carefully studied, as well as that on washing the baby.

The chapter on "Valley of the Shadow" is so beautifully told and so pathetic that none who read it will forget it. Surely the author is filled with sentiment and sympathy. There is wholesome philosophy in this last chapter. To quote a few lines: "She feels she is needed, decides to stay and do what she can for the poor failing body, and so the weeks drag on in dreadful monotony until she feels that she is stranded with her patient upon an island of pain, that there is no outlook but the river of Death and no hope for the life she is guarding. All her skill can do is to help smooth the rugged pathway, down which the feet must tread alone." For the patient, "She is so near to knowing the great Mystery; will so soon see those who have gone before. It seems as the end comes nearer, and yet more near, as if, perhaps, one could send a message to some of her own loved ones"; "If you see some of my dear ones, bear them a loving greeting from me, tell them I am trying to live as they would have me live."

Those of us who have helplessly watched a patient "pass to the great unknown" know how the heart sinks in despair at our helplessness, but we cannot feel the hopelessness of despair experienced by a sympathetic nurse who has watched and done for the patient constantly for perhaps months. We think it the wish of all of us to have such a one near when the fateful messenger comes our way. It will make the ending more endurable.

We can but wish every reader of this little book as much pleasure and profit as it has given us.

**Milk and the Public Health.** By WILLIAM G. SAVAGE, B.Sc. (Lond.), D.P.H. County Medical Officer of Health, Somerset. Late Medical Officer of Health and Public Analyst, Colchester. Lecturer on Bacteriology, University College, Cardiff. Asst. in charge of the Bacteriological Department, University College, London, etc. London and New York: Macmillan & Co., Limited, 1912. Price \$3.25.

The importance of milk is evidenced by this voluminous work of 450 pages or more. It is divided into three parts, Part I dealing with the Bacteriology of Milk: Milk and Human Disease in a summary of our scientific knowledge of the facts of bacterial contamination of milk and its relationship to disease. Part II. The Bacteriological Examination of Milk for the benefit of the laboratory worker. Part III. Public Health Control of the Milk Supply. There is also an Appendix giving brief references to laws in force in Great Britain regulating milk supply.

Chapter VIII, devoted to milk and child mortality, will be found of unusual interest and value. The question of the relation of Tuberculosis of the Cow to Human Disease is discussed in Chapter VII, and represents the consensus of expert opinion in the light of recent study of the subject. We have found this work full and accurate. It is, however, too voluminous to review in detail. Suffice it, therefore, that a careful study of the questions of milk as given in this work will prove interesting and most useful. Paper, binding, and illustrations are excellent.

**The Wassermann Reaction, Its Technic and Practical Application in the Diagnosis of Syphilis.** By JOHN W. MARCHILDON, B.S., M.D., Asst. Professor of Bacteriology, St. Louis University Medical School. Eleven illustrations and colored frontispiece. C. V. Mosby Company, St. Louis, 1912.

It is a pity that this very valuable adjunct to the diagnosis of syphilis has not yet been so simplified as to enable the average physician to make use of it. But the fact is the technic is so difficult; a laboratory experience and equipment so necessary to success that it can be used only by expert bacteriologists; those who have a proper appreciation of the exacting technic. Numerous modifications of the Wassermann have been suggested, but we believe that all have been disappointing. However, we have hopes that some simplified method will be worked out, for the findings from the Wassermann's Reaction are necessary to diagnose syphilis in especially the para and meta, or obscure types.

Dr. Marchildon in this small volume gives detailed and authoritative information for making the Wassermann test. We commend the work to those of our readers interested (and what physician is not) in the accurate diagnosis of syphilis.



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## ORIGINAL ARTICLES

### REPORT OF A CASE OF CHRONIC INFECTIOUS POLY- ARTHRITIS (STILL'S DISEASE) PRESENTED AT THE WEEKLY CLINICAL CONFERENCE OF THE NEU- ROLOGICAL INSTITUTE OF NEW YORK

BY JOSEPH COLLINS, M.D.,  
*Physician to the Neurological Institute*

Amongst the varied material that comes for differentiation to a neurological hospital are many rare diseases or types of diseases. Of these few are wrapped in greater obscurity regarding their causation than the one which I present to you this afternoon, and which apparently is a typical case of a form of chronic polyarthritis described by Dr. G. F. Still, of London, in 1897 (*Medico Chirurgical Society Transactions*, London, 1897). The disease is not a neurological one, and were it not for the apparent rarity of its occurrence, I should not ask your attention to a consideration of the case. I might be so justified in doing so, nevertheless, because the rôle which the nervous system plays in the causation of the disease has been given an important part by some writers on the subject. This is wholly unjustified, however, I believe, by the few facts that we are in possession of regarding the course of the disease, and particularly regarding the visceral effects of it.

When Dr. Still published his first report he based his observations upon nineteen cases. In practically all these cases the disease had begun before the sixth year of age. Its onset was insidious in many instances, but occasionally a case was encountered in which the joints became swollen and tender, rather abruptly. The enlargement of the joints symmetrical, smooth and fusiform was progressive and after a varying time, from a few months to a year, more completely incapacitated the patient. He remarked that an invariable accompaniment of the disease was an enlargement of the lymphatic glands and of the spleen.

In 1903 Dr. Royal Whitman reported the final results of two cases of this disease (*Medical Record*, April 18, 1903), and discussed its relationship to rheumatoid arthritis. He remarked upon its obvious





FIG. 1

rarity in this country, basing his statement upon his experience at the Hospital for Ruptured and Crippled. The first case which he put on record was apparently a typical example of the disease. Upon autopsy the liver was found to be three times its normal size and the seat of profound amyloid degeneration, the spleen was correspondingly enlarged and the seat of similar degeneration. The kidneys



FIG. 2

were soft and nodular and showed parenchymatous and amyloid degeneration. None of the other viscera was apparently diseased, although the pancreas was large and firm in consistency. All the mesenteric glands were enlarged and yellowish white, and the seat of amyloid degeneration. In this case practically all the joints were involved save the sternoclavicular joints, those of the fingers and toes, lower jaw and the spine. The diseased joints were lined with

soft granulated tissue which replaced the synovial tissue. This tissue surrounded the cartilaginous surface of the component bones with a pannus like growth which eroded and destroyed the surface on which it rested. The fluid within the bones was increased in quantity.

The second case which Dr. Whitman reported is of great interest, because it seems to have eventuated in complete recovery, an issue which seemed to have been immediately conditioned by the occurrence of an attack of scarlatina. In this connection I call your attention to the fact that three of the cases reported by Dr. Still improved immediately after the onset of infectious disease, such as measles and scarlatina.

In July of the present year Dr. V. P. Gibney reported a typical case of the disease. Dr. Gibney referred to one or two other cases (one of them at least a case reported by Dr. Whitman) which he had under observation. In the case reported by Dr. Gibney the treatment adopted, in addition to general hygienic and nutritional treatment, was the administration of thymus extract in 5 gr. doses, three times a day. Under this treatment the child made very satisfactory improvement, and when he was discharged from the hospital the opinion was expressed that a good result would follow and a fair range of motion be secured. It would be interesting to learn the condition of these two patients at the present time.

In a paper entitled "Chronic Rheumatoid Arthritis of Childhood" (*Archives of Pediatrics*, September, 1910), Dr. H. Koplik published the notes of several cases, some of which are undoubtedly examples of the disease described by Still. Dr. Koplik refers also to a case of rheumatoid arthritis which he published in 1896 which "so closely resembles the cases described by Still that to make them two separate affections would only confuse matters by an unnecessary refinement of classification." He further remarks "the term rheumatoid is not a very apt one," but regrettably he used it for the conception of rheumatoid arthritis is yearly growing narrower as the various forms of infectious arthritides are being distinguished.

The patient that I wish to present as a typical example of the disease which is now popularly known as Still's Disease, is a boy, J. H., twelve years old, of Hungarian Jewish parents. The story that his mother relates is that when he was four years old he had some disorder of his lungs, which she thinks was pneumonia. The illness lasted for about three weeks and was accompanied with fever. The child has never been well and strong since that time. A few weeks after the fever ceased the mother noticed that the smaller joints of the fingers were swollen, and gradually the joints of the upper extremities showed the same disorder. After these joints had become

affected the disease seemed to cease progressing for a period of three or four years, and it was not until the last three years that the swelling and deformity occurred in the lower extremities and in the spine. And it is since that time that he has been unable to walk. When he attempts to stand now, supported from the arm pits, the tips of the toes rest upon the floor, but he can put no weight upon them. The thighs are flexed upon the abdomen when he is lying on his back, and the legs upon the thighs.

The child presents a most extraordinary appearance as he lies upon the cot (Fig. 1). At first sight the head seems far too large for his body, but when one measures it it is found to be the normal size head for a child twelve years of age. The face is small, pinched, and weakened. The teeth are bad; when he speaks the voice is weak and piping.

The chest is the shape of a pyramid with pronounced lateral bulging. This lateral bulging is due in a considerable measure to an enormous enlargement of the liver and of the spleen. The liver dulness is below the level of the umbilicus, and the spleen is easily one-half times greater than its normal size.

Practically all the joints of the extremities are enlarged and deformed. The enlargement is of a symmetrical outline, and in the larger joints an effusion can be readily made out. The upper extremities are in a semiankylosed state, similar to that mentioned as existing in the lower extremities. The spine is rigid in the cervical and the dorsal regions.

There is a uniform enlargement of the lymph glands in the axilla and in the suboccipital region. Also of the inguinal and of the epitrochlear glands. These are firm and discrete, showing no evidence of breaking down. One of the epitrochlear glands was aspirated, but all that could be found in the stained smears of what little was obtained were blood cells, though methylene blue, carbol-fuchsin and Giemsa's stain were attempted for tubercle bacilli, spirochaeta, etc.

The skin of the body is dry and scaly and there is disseminated alopecia. There is no evidence of any involvement of the nervous system: the tendon jerks, the superficial reflexes, all varieties of sensibility, the special senses show no disorder. The patient was as bright mentally as the average child, but had never gone to school. Repeated examinations of the blood showed practically the same condition—red blood cells 3,982,000; white blood cells 24,200. Differential count neutrophiles, 70 per cent.; eosinophiles, 3 per cent.; basophiles, 0; large lymphocytes, 10 per cent.; small lymphocytes, 16 per cent.; transitional, 1. Hemoglobin, 50 per cent. The

red blood cells on study showed marked microcytosis and hemoglobin degeneration. The Wassermann reaction of the serum was negative.

The urine showed albumen in variable amounts every time it was examined—eight times altogether. When he first came into the hospital it amounted to eight Esbach. Nearly every specimen examined showed many hyalin casts, and a few of them showed granular casts, both finely granular and coarsely granular. Examination of the gastrointestinal contents showed no abnormality.

The most striking features of the disease, therefore, are:

1. The stunted growth of the child's body; his entire length as he lies in bed seems to be about 32 inches.
2. The fusiform enlargement of the joints, which seem more enlarged and deformed than they really are because of the contrast with the profound wasting of the muscles.
3. The enormous enlargement of the liver and the spleen.
4. The profound dryness of the skin and diffuse alopecia.
5. The generalized adenoplasia.
6. The striking changes in the blood. Marked increase of white blood cells, eosinophilia and evidence of conspicuous degeneration in the red cells.
7. The evidence in the urine of an amyloid degeneration of the kidneys.

Consideration of these conditions, it seems to me, would lead one conclusively to the opinion that we are dealing with some generalized form of infection. Such adenoplasia and such amyloid degeneration occur usually as the result of chronic infection, such as protracted tuberculosis. The blood picture which this child presents, and which in a measure has been reported in many other cases, especially the changes in the leucocytes, is likewise that of some long continued poisonous process, such as a low grade septic infection. Any one who has seen much of gonorrheal arthritis cannot fail to be impressed with the similarity which the joints in what might be called an acute stage of Still's Disease exhibit to the joints in gonorrheal arthritis. Finally, it seems to me that the unquestioned recoveries that have been recorded of the form of polyarthritis under discussion after the occurrence of infectious disease makes it absolutely certain that here we are dealing with some infectious process. Whether or not it is a specific infection remains to be determined.



ENVIRONMENTAL ARREST OF DEVELOPMENT; OR  
EVOLUTIONAL DEVELOPMENTAL HYPOPLASIA  
OF ENVIRONMENTAL ORIGINBY CHARLES P. NOBLE, M.D., Sc.D.,  
Philadelphia

The nature, cause, and frequency of arrest of development in the human family are subjects which properly are engaging much attention on the part of the profession at the present time. The views which have been accepted in the past, and which the attitude of biologists during the past generation has done much to crystallize, have been that arrest of development or defective states of body, mind, and moral nature are hereditary in their nature. On the part of zoologists more especially the problems involved have taken the form of a controversy, pro and con, as to whether or not acquired characters can be inherited. The followers of Weismann have taken the negative in this controversy, and their views are accepted by the majority of biologists.

The view has been held by many in the profession that certain diseases and certain morbid tendencies acquired by ascendants may be inherited by descendants. This applies more especially to the inheritance of syphilis, of tuberculosis, and of various of the drug habits, such as alcoholism, the morphia habit, etc. This belief has been entertained by physicians upon the basis of observed facts, but it has been pointed out, especially by Weismann, that their interpretation of the facts is inaccurate.

Cytologists have demonstrated that the hereditary bearing principle in the spermatozoon and in the ovum is contained in the chromosomes of their nuclei, and Weismann has pointed out that as neither alcohol nor pathogenic germs constitute an integral part of a chromosome, in the biologic sense, it is impossible for them to be hereditary. It seems clear that this position of Weismann is well taken. He admits that there are well observed and well attested facts in support of the view that the descendants of alcoholics show various defects in their constitutions; and also that the children of syphilitics not infrequently are born syphilitic, and that the children of tuberculous individuals more frequently than others develop tuberculosis. Referring more especially to the descendants of alcoholics, after discussing the various problems involved, involving the effects of alcoholism upon the constitution, he admits that the germ cells of alcoholics can be, and are, injured, and designates this altered condition of the germ cells, when impregnation follows, as "affection of the ovum."

The human organism in its prenatal existence has both a post-conceptional and a pre-conceptional life history. In the post-conceptional period the body of the mother constitutes the environment of the evolving organism. If her body becomes poisoned by disease, toxins may reach the growing organism and poison it. In the pre-conceptional period the human organism has a dual existence—as ovum and as spermatozoon. The ova and the spermatozoa likewise, speaking broadly, exist under various forms, from that of the spermatoblast and the primitive ovum to that of the fully developed spermatozoon and the “ripened” ovum. During this dual existence the bodies of both parents constitute the environment of the subsequent human being. During this period, also, disease in the parents may poison and injure either the ova or the sperm cells. The nature of conception shows that the process in the human is quite analogous to that of conjugation in protozoa, in which two organisms come together in order to form a third. Weismann’s term, affection of the ovum, in a general way covers environmental arrest of development in pre-conceptional life. The degree of poisoning may vary from that which destroys the germ cells to that which injures them but little, and merely delays their development.

In this contribution, the details as to the consequence of pre-conceptional and post-conceptional poisoning by disease in the host will not be developed. It belongs to the subject of teratology. It must suffice to say that laboratory workers in experimental teratology have definitely proven that all the arrests or monstrous births which have been looked upon as hereditary by some in the past can be produced artificially by poisoning the evolving organism. This demonstrates that arrests of development can be due to environmental as well as to hereditary causes.

The beginnings of this concept formed in my mind when, in 1886, in conjunction with the late Dr. Harrison Allen, I studied a series of cases of delayed puberty in girls. Dr. Allen was a mine of facts concerning the morphology of arrested development. He was a man of high intelligence and gifted with creative imagination, and had been broadly trained as a surgeon and as the creator of surgical rhinology. He was well equipped to instruct me in the correct interpretation of the phenomena of delayed puberty. These girls were studied morphologically, and it was found that in them the arrest of development was not particular as to their sexual organs, but was general, and involved their entire morphology; that is to say, the osseous, nervous, circulatory, blood-making, lymphatic, and glandular systems, each and all showed evidence of arrest of development. They were characterized further by evidence of lowered vitality.

The history of these girls, selected from a public dispensary, whose parents belonged to the lower working classes, showed that their vital state from infancy onwards had been below the norm. Various episodes in their history indicated this, as each of them had suffered from a greater incidence of disease than is common in childhood; and also their state of nutrition had usually been so much below the norm as to be plainly apparent. In other words, it was evident that they were incapable of developing the usual amount of vital energy.

In interpreting the facts observed in this series of cases, we concluded that as the morbid history of these girls dated back to birth, it was due to arrest of development from antenatal causes, and so we rested with the generalization that the conditions which presented themselves were of congenital origin. Dr. Allen suggested to me that the most satisfying explanation lay in the fact that as each of these girls had a defective nervous system, their metabolic processes had been imperfectly performed, and that this had led to relative malnutrition and to delayed or arrested development. As it will be found, the word "congenital" was the stumbling block, and had it not been that this concept—then and still current in the profession—served as a resting point for the train of thought in the mind of Dr. Allen, very probably he would have solved the problem in 1886, for which he was so well qualified both by natural endowment and by acquirement. The concept involved in the word "congenital" allowed the nature of the process concerned to become obscured in the mystery of conception and of antenatal growth.

I was profoundly convinced of the truth of this generalization, and, likewise, was for years prevented by the term "congenital" from attacking the problem in the only manner in which it could be solved; but as time progressed, and as clinical experience was gained, a constant procession of examples of delayed puberty in girls came before me for observation, and likewise these same young women presented themselves when older, so that their life history was forced upon my attention. In them puberty was delayed from one to seven years, in my experience, and when menstruation does appear in them it is never, or almost never, typical; it is either irregular as to time or as to quantity, or it is painful instead of painless; and the character of the pain is that spoken of as neuralgic or aching—a constant, steady ache—coming on from a week to a day prior to the onset of menstruation, and usually is most marked in the ovarian regions; at times it is absent from the pelvis, but instead is manifest in the epigastric region or in the head—usually as a so called nervous or sick headache.

I observed that the mentality of these young women is atypical, and also this is true of their nervous reactions. The relative lack of vigor or vital energy which characterizes them before puberty is equally manifest during adolescence and in after life. They are relatively shy, and hence do not take part in the usual manner in the accustomed sports or diversions of girls of their age. They are relatively timid and shrinking, and when aroused are inclined to be perverse. Their other physical characteristics depend upon their temperament—as to whether they are more or less imaginative.

Their nervous system is relatively unstable. Physically and nervously their reactions are more mobile and feeble than is typical. Likewise, they are more suggestible. They are more subject to functional derangements and to organic disease than are individuals of sound stock and of good constitution.

As my clinical experience broadened I learned that particular morbid states are very commonly engendered among them—adenoids in the nasopharynx, enlarged tonsils, chlorosis, anemia, involution, appendicitis, the various ptoses, etc.—and that tuberculosis very frequently finds victims among them.

This history of this group at school presents equal variation from individuals of sound stock and of good constitution; that is, they are of varying degrees of mentality; but what is common to all of them is that they lack grasp—concentration; that they are incapable of doing full work, and, if they attempt it, they break down with either nervous prostration, hysteria, chorea, or functional diseases of the glandular organs—the one affected depending upon the system in the particular individual which is most susceptible to morbid agencies.

In their social relations the life history of these young women depends upon the degree of arrest in the particular individual. Those sufficiently arrested to be markedly shy and retiring fail to take their expected part in social relations, and hence are tardy worshipers at the shrine of Venus—not infrequently the sex instinct is absent or dormant—and this is relatively true of all of them. Speaking broadly, the sex instinct in them is deficient; in them are found the so called frigid women—who make up approximately 33 per cent. of the women having American ancestry in the north-eastern part of the United States—the “New Woman.”

The sex instinct may be arrested at any age from that of infancy to that of the adult, depending upon the degree of arrest or of poisoning of the evolving organism. In the frigid women the sex instinct is arrested in childhood; because even at puberty there is enough of the instinct present for some manifestations. However,

it is unnatural for the average American girl of fifteen or even sixteen to desire a husband and family, and so even if the instinct be arrested not later than the sixteenth or seventeenth year the woman may be frigid. The degree of frigidity is dependent upon the age of arrest, and the nearer to maturity the young woman is when the development is arrested the greater is the likelihood that the sex instinct, including passion, will develop under physiological exercise. Those who are arrested in their development before birth or during childhood usually remain frigid for life. They seldom develop fully either physically, mentally, morally, or sexually. Their mental arrest may correspond with that of the developing child at any age from infancy to that of the adult, and the same is true of their moral or emotional, which includes their sexual, nature. This general group or class of women constitutes the "New Woman," of whom so much is heard today, but who doubtless has existed since the beginning, as she is the product merely of unfavorable environment. In the past she has not figured largely in either medical or other literature. She is relatively neuter in sex, and has been a cipher in society in the past, instead of the vociferous creature of today.

In addition to chlorosis, occurring most frequently between the ages of eleven and fifteen, and chorea, occurring at any time from childhood on to adult age, and the development of adenoids in the nasopharynx, and enlarged pharyngeal tonsils, the most common morbid states which develop in environmental developmental degenerates are delayed and irregular menstruation, dysmenorrhea, leucorrhea, menorrhagia, various neuralgic aches and pains, due either to toxemia, or to malnutrition, or to strains, causing pain in lowly vitalized or atonic ligaments, and functional disorders of the various special organs, including refractive errors in the eyes, vasomotor disturbances in the nose and in various other organs, hysteria and neurasthenia, and finally chronic invalidism of an asthenic type.

When environmental developmental degenerates marry, in those least arrested the sex instinct may be the incentive to marriage; but in the majority love is either psychic in its nature or else it is relatively nonexistent. Most frigid women marry for conventional reasons—a home, protection from want, ease, comfort, or the desire for luxury.

After marriage their history is not uniform, as different individuals differ in the degree of their particular and general arrests. They vary from those possessing a certain degree of libido to those who are absolutely frigid or without passion. As a general group they are either sterile or relatively sterile. As a great majority of



them are frigid and marry from other motives than that of love, in them marital relations are either relatively or absolutely distasteful. Where love is merely psychic they are submissive and non-resistant, or they even make themselves appear to be typical in their conjugal relations. Those possessing the maternal instinct who remain sterile very commonly brood about their childless state until they develop neurasthenia. Examples of this type of environmental developmental degenerates are frequently met with in gynecological practice. They constitute most of that large group who, since the days of Marion Sims, have been subjected to dilatation of the cervix uteri for the intended cure of dysmenorrhea and sterility.

When impregnation occurs in environmental hypoplastic degenerates the various disorders of pregnancy commonly follow, such as hyperemesis gravidarum and puerperal eclampsia. As their nervous, muscular, and osseous systems are relatively arrested or undeveloped, labor in them is commonly atypical. The labor pains are weak, painful, and ineffectual, and commonly such women become exhausted before delivery is effected; hence it becomes necessary for the obstetrician to assist them artificially. For the above reasons postpartum hemorrhage is a more common sequela than in the average of labors. Also, as the cervix uteri and the perineum are relatively undeveloped, lacerations of the cervix and perineum are relatively common. Because such women are asthenic, or have a relatively low vitality, or vital resistance, postpartum infection is relatively common. Also, if for any reason catheterization becomes necessary, infection of the bladder not uncommonly follows for the same reason.

As the sexual organs of these women are relatively undeveloped prior to pregnancy, subinvolution or imperfect involution commonly follows labor; because the forces or energies of nature in them are relatively feeble. Hence, for all of the above reasons, malpositions, or ptoses, or hernia of the pelvic organs, are relatively common after labor in environmental degenerates.

Delayed puberty is the direct consequence of the failure of the thyroid gland to develop or evolve physiologically at or about eleven years of age. The occasion of the nondevelopment of the thyroid will not be further discussed in this connection. Experience has shown me that delayed and atypical menstruation is associated with defects, both morphological and physiological, in the thyroid gland. This fact is the key or the explanation to the subsequent life history of environmental degenerates, and is the explanation of the functional or pathological disturbances in pregnancy.

As my clinical experience, first, as a family physician, then as an

obstetrician, and finally as a gynecologist and abdominal surgeon, grew, and as time passed, it was forced upon my attention that there was a definite relation between the so called malpositions of the uterus and ovaries and the ptoses, or malpositions, of the various abdominal organs. As early as 1892, through the influence of the late Dr. Edebohls, I became interested in the study of malpositions of the kidney, and this has been one of the fields which has most engaged my attention from that date until the present time, as my contributions to the subject indicate; also as a result of these studies the erect position with the shoulders slightly bent forward, the hands being supported upon a convenient table, was recommended as the best position in which to study the fact of malpositions of the kidney, and also the relative degree of its development and of its mobility. As these investigations proceeded, more and more was learned concerning the interrelations of the ptoses of the abdominal viscera and of the pelvic organs, and also, sometimes, the supposed ptoses of various organs were found to be really examples of arrested evolution—persistent fetal, infantile, or adolescent positions of the particular organ or organs concerned.

When involution appendicitis, or cirrhosis of the appendix, or premature senescence of the appendix, began to force itself upon the attention of clinicians, Edebohls found this morbid condition not uncommonly associated with mobility of the kidney; and he drew the deduction that low grade appendicitis is caused by interference with the circulation in the appendix by displacement of the kidney. His observations as to the relative frequency of the coexistence of these two morbid states were correctly made, but it became apparent to me that his deduction was faulty; that, in truth, both conditions are usually due to environmental degeneracy.

Finally, when the literature upon the nature and the cause of ptoses of the kidney and of the abdominal viscera began to grow toward its present voluminous proportions, and a multitude of causes were assigned by various authors, as explaining these conditions, I remained unconvinced of their validity; as in my personal experience—excepting a small percentage of cases—all the instances of ptoses of the abdominal viscera, and more especially of the kidneys, have been associated with a certain type of figure, which I had learned to designate as that of the environmental hypoplastic degenerate, broadly speaking, that of the so called hereditary consumptive.

With increasing clinical experience, it became more and more evident that women of the class under consideration are subject to all of the so called functional diseases; and as they presented themselves in my consulting room, in addition to the functional disorders of their

sexual organs, "nervous indigestion," neuralgias, anemia, and constipation are the morbid conditions most frequently observed. Finally, it was borne in upon me that the various morbid states, or so called diseases, which have been enumerated above, are merely episodic disturbances in the life history of an environmental developmental degenerate, or in one suffering from arrested development from environmental causes. This induction or generalization conclusion was actually reached through the recognition of the fact that many individual patients within my own professional knowledge were found to be suffering from each and all of the morbid states which have been enumerated.

As since the year 1889 my professional work has been confined almost exclusively to the fields of Obstetrics, Gynecology and Abdominal Surgery, and as the percentage of men patients under my care during this period has been inconsiderable, naturally my deductions have been drawn from the study of environmental hypoplastic degenerates among women, rather than among mankind. However, for five years, between the years of 1884-89, and for some time subsequent thereto, I was a general practitioner, and in addition, as I have had the opportunity of observing men with the trained eyes of a naturalist physician during my entire professional experience, I am not ignorant, on account of lack of opportunity for observation, that the same facts in a general way are equally true of men as of women.

It thus became evident that the great mass of patients who flock to the offices of physicians for so called functional, subacute, and chronic disorders, more especially those involving the organs of the special senses and those of digestion, nutrition, and of excretion, are largely—indeed, almost wholly—made up of environmental hypoplastic degenerates; and that their so called diseases are merely episodes in their lives, which arise as a consequence of a particular individual having either expended more energy than he is capable of developing, or of having led such an indolent or otherwise self-indulgent life as to have brought about his so called disease.

It was in November, 1908, that the concept of the relation of developmental environmental degeneracy to disease was reached, and that it was finally appreciated that all such individuals are instances of environmental evolutionary or developmental hypoplasia. In other words, that the conclusion which Dr. Allen and I formed concerning those girls whose puberty is delayed is equally applicable to all environmental, developmental degenerates.

It has been customary in the past to divide mankind into normal and abnormal individuals. A consideration of the facts must lead to

a change in the use of the terms normal and abnormal. Mankind must be divided into three series: 1. Those of sound stock and of good constitution. 2. Those having environmental developmental arrests—instances of environmental developmental hypoplasia. 3. Those having hereditary arrests of development, due to specific defects in the germ plasm of their ascendants. The third group comprises a sub-group, in which the arrests are due both to hereditary and to environmental causes.

Each of the three series of mankind varies from a mean, physical, mental, and moral to two opposite extremes. In form they vary from the average in height, breadth, and thickness to the smallest upon the one hand, and to the greatest upon the other hand, with respect to size. There are also differences in the series in both mind and emotional or temperamental nature, as to quality and as to quantity in these two natures. It thus becomes evident that the terms normal and abnormal as applied to mankind in general are misleading, as each man has his own normal in body, mind, and moral nature, which differs from that of every other man. Each man becomes abnormal when he becomes sick. His departure from the norm or type or mean of the species depends not upon disease, but upon the nature of his physical, mental, and moral characteristics when compared with that which is typical for mankind.

Confining our attention now to the physical characteristics of the series having arrest of development from environmental causes, they vary from the dwarf, upon the one end of the series, to the giant at the other. The dwarf is usually an idiot, or at least is idiotic in type; whereas the giant of the environmental degenerate series is relatively a giant in feebleness, physical, mental and moral—he is apt to be an imbecile, or at least imbecilic in type.

That which characterizes the entire series of environmental evolutionary degenerates is weakness, or an organism more lowly vitalized than is typical for humanity. Their potentialities for developing energy are below the mean of the race; their bodies are more asymmetrical both in general and in particular than is true of those of sound stock and of good constitution, and, broadly speaking, their asymmetries are general rather than particular as compared with the series of hereditary degenerates.

The characteristic figure of those having evolutionary hypoplasia of environmental origin is marked by a relative increase in length and capacity of those parts of the body which are the least vital or important, and by a relative decrease in length and capacity of those parts of the body which are most vital. Thus it is found that hypoplastic individuals have a long neck, a long loin, long arms and long legs;

whereas the chest, which contains the vital organs, the heart and the lungs, is relatively short, shallow, and narrow.

Because of their lessened potentialities for developing energy, or the more lowly vitalized state of their tissues, the posture and the gait of hypoplastic individuals is characteristic.

They do not stand erect. The head is relatively bowed, the curves of the vertebral column are altered, the shoulders droop forward, and the chest is flattened; because the ligaments and the muscles upon which the characteristic posture of the body depends are atonic, and thus do not typically counteract the influence of gravity. As the chest is flattened, as the ribs and the sternum are not typically drawn up during respiration, and as the muscles of the abdomen, as well as all the other muscles, are atonic, laxity or an atonic condition of the abdominal walls is present; and there is a tendency to the development of "pot-belly" following parturition, if not independent of it.

The gait is shambling or shuffling, and all their movements demonstrate their lack of full capacity to generate energy. They are relatively slow in their movements, and in their mental and emotional reactions, unless diseased.

Certain groups of hereditary degenerates have similar figures, but in them the nervous and muscular reactions are quite different, as their nervous systems are unstable and either constantly irritable, on the one hand—as is generally true of hereditary degenerates below the mean in size—or they are either explosive in character, at certain periods, or lethargic in character during other periods, on the other hand—as is generally true of those above the mean in size—the characteristics of the Wanderlust type of hereditary degenerates.

In a general way, the figure and the characteristics of environmental evolutionary degenerates correspond with that of the hereditary consumptive. This figure and this type of constitution makes up at least one third of those having American ancestry, for at least three generations, in the northeastern part of the United States.

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## THE DIAGNOSIS OF PELLAGRA

BY C. H. LAVINDER,

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The recognition of pellagra as a disease endemic in the United States, and quite prevalent in some sections, now some five or six years ago, has been followed by developments which are hardly appreciated at their true value by the medical profession of this coun-



try. The disease has been largely confined to the Southeastern United States, and the medical men of the Northern and Western States have not perhaps had the clinical opportunities afforded their Southern confrères to become familiar with the manifestations of this disease. Pellagra, however, has been reported, at least sporadically, from all parts of the country, and it seems to be constantly extending its area and affecting larger numbers of people. It would seem wise, therefore, for every American physician to become acquainted with its salient diagnostic characteristics. Indeed, one might lay even more emphasis on the great importance of constantly bearing this disease in mind. It is a malady of very protean character, and errors in diagnosis may involve distressing tragedies, more especially since many of these cases have suicidal tendencies.

Moreover, early diagnosis is, by common consent, thought to give a far more hopeful prognosis, since treatment of early cases gives much more hope of good results. The diagnosis of the disease in a well marked case fully developed offers no difficulty, but the early cases and cases which do not show typical symptoms not infrequently present the greatest difficulty in arriving at a conclusion. The diagnosis must depend upon the history, symptoms, and development of the disease, for as yet we have no precise, laboratory methods which will give confirmation. Many attempts have been made to devise some precise method of diagnosis, but so far none has proven satisfactory. It is of interest to note, however, that recently Volpino\* has presented a communication claiming that on the basis of extensive experiments he has established the presence in pellagrins of an anaphylactic reaction to extracts of spoiled corn. This reaction consists of a rise in temperature, acceleration of the pulse rate, often vomiting and increase in intestinal peristalsis with at times the passage of bloody stools, psychic phenomena, and sometimes the aggravation of preëxisting erythemas. His controls did not present these phenomena. He suggests the use of his method in diagnosis. His work will of course require confirmation. Previous similar attempts by others along this line of work have given negative results.

In discussing diagnosis it may be well to outline briefly the general characteristics of the disease. Pellagra is an endemic disease characterized pathologically by serous organic changes in the central nervous system, and clinically by a chronic course with periodic manifestations of acute phenomena referable to the gastrointestinal tract and to the nervous system as well as by the appearance of an erythematous exanthem on certain exposed body sur-

\*XV. Internat. Congress on Hygiene and Demog., Abstract of Papers, p. 9.

faces. It not infrequently leads to insanity or to a fatal cachexia. The striking characteristics of the malady are its chronicity, seasonal appearance of acute symptoms, including its striking skin eruption, protean type, and the involvement principally of the nervous system, gastrointestinal tract and the skin in its manifestations—the so-called “pellagrous triad,” which some writer has put in alliterative form as “dermatitis, diarrhea, dementia.” It is to be emphasized that the essential morbid process involves the central nervous system, and that this conception of the disease is fundamental.

The disease is a slowly progressive one, and writers for a long time have for purposes of description divided its development into four more or less artificial stages or degrees. These are usually called Prodromal, First, Second and Third Stages. The prodromal stage is indefinitely marked both in length of time and symptomatology; the first stage has reference to the gastrointestinal and skin symptoms; the second stage concerns the cerebrospinal and psychic phenomena; and the third stage is the terminal one of cachexia. These various stages are to a large extent arbitrary, and it should not be forgotten that there is no sharp line of demarcation between the stages; that nothing is implied as to the length of time the disease may have existed; and that the stages represent rather differences in degree than in kind. Pellagra runs its course in a series of periodic attacks—alternating ameliorations and exacerbations. The exacerbations occur as a rule in the springtime, sometimes in the fall or even at other seasons, and subside after a time, only to recur again the next year. Following the somewhat indefinite prodromal period, there arise next gastrointestinal and nervous disorders, usually accompanied in a short while by the striking erythema. The brunt of the successive attacks is borne by the nervous system, and each annual recurrence leaves a deeper and more ineradicable impression upon the nervous and mental condition of the sufferer.

For purposes of diagnosis the most important symptom of the disease is the skin eruption. This when present is regarded as pathognomonic. This striking symptom is so prominently in evidence that it has given the disease its name, and since its peculiar characteristics present evidence of so much weight in diagnosis, it may be well to consider it somewhat in detail. Largely following Merk, the following features may be noted:

(1) Dermatologists have almost unanimously agreed, in the first place, that the pellagrous eruption is an erythema in the dermatologic sense of that word.

(2) The erythema, as a rule, appears suddenly—within a short

time; and its genesis is not necessarily connected with such external things as solar or atmospheric influences. Not infrequently, however, its origin can be traced to various external influences, solar influences, applications of various irritating substances or even pressure, as, for example, on elbows and knees, which should always be examined. Recently I saw a young girl with a marked pellagrous erythema attributed by her to the previous application of some proprietary freckle lotion. Similar histories are not rare—the irritant apparently serving as the exciting cause of the erythema.

(3) The erythema is peculiar and characteristic in its limitation, its edge ending in a typically marked red border, delimiting it sharply from the healthy skin beyond.

(4) In its evolution it rather early develops a broad zone of scaling which is quite characteristic of the process. As a rule it does not reach its height for several days, and requires even a longer time in its retrogression, which ultimately occurs by first loss of the rosy border, then gradual fading of the center, while the scaling and crusting zone remains still longer the seat of the receding process. Exfoliation may take place with the shedding of the large areas of epidermis.

It is to be noted that some cases show bullous formation with early loss of epidermis, and consequent raw, bleeding surfaces which readily become infected. At times during the receding process ulcers and painful cracks and fissures may develop, and even gangrenous processes may be rarely seen.

(5) One of the most striking characteristics of the eruption is its symmetry and distribution. It is nearly always markedly symmetrical and shows certain places of predilection. These are the backs of the hands, and of the feet, the face and the neck—those places most exposed to atmospheric influences. Many descriptive appellations have been given to the various localizations of the erythema, such as "glove," "gauntlet," "boot," "neckband," "cravat," "mask," etc. In addition to these favorite spots the eruption may exist elsewhere and may even be generalized.

(6) The color scheme of the erythema is of importance. On its first appearance it is usually a fairly bright red, almost like a sunburn, and the part is a little puffy. In a short time this color often takes on a bluish tint, sometimes called "plum" color. Then, in the course of further changes, the whole passes to a reddish brown, or sepia, or bronze tint, which is very characteristic.

(7) Itching is usually absent and never marked. The part burns and has a tense, uncomfortable feeling, but does not show scratch marks.

(8) The seasonal appearance of the eruption is important. As a rule, it appears but once annually, at spring time or in the fall. It may occur at both seasons in the same individual, but this is unusual. It may also occur rarely in the winter months.

(9) With early attacks the skin, after the disappearance of the eruption, resumes its normal appearance, but recurrences lead finally to trophic changes.

(10) Notwithstanding the importance of the skin symptoms in diagnosis, the associated constitutional manifestations should be sought for and given due weight. Cases may occur with only the skin eruption, and in some localities such cases, especially in children, are not rare.

Reference here must be made to the fact that pellagra is reported without any skin lesions, so called *pellagra sine pellagra*. It is a matter of much doubt whether a pellagra ever occurs without skin symptoms at some period of its evolution. It is no rare thing, however, to meet cases presenting the clinical features of the disease without skin manifestations. The diagnosis under such circumstances is by no means certain, and in many cases must remain tentative.

Pellagra in its chronic course not infrequently displays certain very acute and rapidly fatal explosions—fulminant attacks which are of the utmost gravity, and not always easy of diagnosis if the patient has not been seen before the onset of the acute condition. The most typical of these explosive incidents has been called by the unfortunate name of typhoid pellagra. And there occur other allied acute conditions. These conditions may prove extremely puzzling unless one have pellagra in mind and make careful inquiry into the history of the case and scrutinize the skin for the evidence of a past erythema.

Further it should be mentioned that the psychic manifestations of pellagra are very common and very important. Space does not permit any discussion of this highly important phase of the disease, but it should be remembered that neurasthenic phenomena often usher in the disease, and the diagnosis remains in doubt until the later appearance of the erythema. Other psychic states are not to be neglected.

In conclusion I wish to reiterate the importance to the medical men throughout the United States of keeping constantly in mind this disease. It is quite prevalent in many sections, and its early diagnosis may be a matter of much importance.

THE EFFECTS OF COLLEGE ATHLETICS ON AFTER  
LIFE\*

BY HARLOW BROOKS, M.D.,

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Family physicians and medical men of all specialties are very frequently asked by anxious parents or by young collegians as to the desirability of college athletics. This is by no means a simple or axiomatic matter, and it is a subject well worthy, I believe, of more thought and consideration than we are perhaps accustomed to give it.

There is no question in my mind that under present conditions athletics do pay the college man, for the student who takes part in these sports enjoys many advantages which may not be indulged in by one out of this department of college life. The very fact that he is in athletics, that at least in a certain way he upholds the glory and honor of his college, gives him at once a social distinction which brings him into immediate advantageous contact with many alumni and with the best men in his school. It wins for him the friendship, respect, and admiration of instructors and upper classmen, while the acquaintances of less distinguished men are usually more or less limited to members of his own class.

The disadvantages under which he perhaps labors, through consequent lack of sufficient time for higher reading or for outside research along the lines of his studies, are to my mind more than compensated for by this increased social and tactical position, which brings him thus in contact with many men who both in college and in after life cannot fail but to contribute to his general education, polish, and social and business advantage.

Whatever he may be deprived of as a result of being in training, in the way of the more usual social pleasures, such as the cultivation of the fine arts and the society of women, he can perhaps well afford to lose from his increased advantages in association with the more aggressive and vigorous types of manhood with whom he is thrown into intimate association because of his athletics.

College athlete is, under the present carefully supervised conditions, no longer a synonym for a "defective" in strictly literary or scientific studies. At the time of graduation the athlete is probably fully the mental equal of those whose entire time has been devoted to literary and allied studies. The very fact that he must lead a physically healthy life in order to excel in athletics insured that healthy mind action which, as a rule, goes with a sound and active body.

\*Read before the New York Medico-Surgical Society, October 19, 1912.



He perhaps loses something in mental finesse, his education in and appreciation of the fine arts may in a way suffer as a result of his devotions at the shrine of Mercury, but in return he receives a schooling in discipline, in "team work," in patience, and in silence under adversity; he acquires a dogged attention to the affair in hand despite the often pointedly expressed and disconcerting criticism of the bleachers, that compensates and more than compensates for his losses in other directions. Does any one think that the severe discipline of West Point, its loyal teachings, the subordination of subordinates or even the occasional submission to personal injustice for public policies unfits for life? We have too little of this in our ordinary training of young men. Discipline, tact, and submission often become special post graduate courses pursued at great cost and with great humiliation in after life by him who has not been previously schooled in these directions.

Fortitude and self restraint are absolutely necessary on the athletic field; without them success in athletics is unlikely or impossible. These are traits even more essential in after life, and the young man who leaves college with these faculties well developed comes to outside life prepared in at least two of the most primitive elements for success in any calling.

Concerning the value of the physical side of college athletics to the college man volumes have been written. If I may be permitted to decide from my own experience and from opinions expressed to me by old professors and instructors, I believe that I may say that the physical work of the college athlete prepares rather than unfits the student for scholastic mental labor.

But much of this is beside the real question. College is but a preparation for life. The most successful college is that which best fits the student to cope with and conquer the problems of life after he leaves his alma mater. The entire utility of a college education must be measured up by its value to life after college days have passed. Therefore, we may as a true test of the value of modern college athletics ask if they pay the business man. This question admits of no simple or axiomatic answer, perhaps it will receive almost as various answers as the people to whom it may be asked. I shall in this brief discussion consider it from my own observation and from a physical standpoint, especially since in the foregoing lines I have already expressed my belief in the mental and social advantages to be gained through this avenue.

I consider it almost an axiom that the best single qualification for the strain and contest of modern life is good physical health. Without this even success itself is a bauble of little value; with it all is

possible and all may be appreciated when achieved. The healthy, logical mind occurs but rarely and quite sporadically outside the healthy body. So perhaps we may be justified in restating our question: Does the physical training of the college athlete better fit the business or professional man for his after life?

I have had frequent opportunities to test this question during the past fifteen years. As a medical officer of a National Guard regiment, largely composed of ex-college men, it has been my duty frequently to examine them and to oversee their military work anywhere from five to fifteen or twenty years after they have left college. During one year I examined in this organization twelve different men, all at one time famous as college football players, and six of them ex-captains of their teams. These men were subjected to the same work and physical tests as those men who had passed through their college course without any particular athletic distinction or who had never enjoyed the opportunities of college life.

Of these twelve famous athletes but one could be rated physically up to the average of his comrades of his own age. This one exception, I may perhaps add, was a Yale Alumnus, and has since died in his early thirties of acute diabetes melitus.

I have found quite similar conditions pertaining in regard to the other college sports, and the defects become even more marked in trackmen, and especially in oarsmen. They appear perhaps in the least degree of all in baseball players.

Conversation with other physicians, especially with those connected with or associated in athletic clubs, has brought out very generally the same observation. The distinguished college athlete after ten years of severe business life is physically below the average college man in his physical possibilities and in the measure of his resistance against disease. He may even fall below the level of the entirely nonathletic man. The defects as I have observed them are chiefly confined to lesions or disturbances of the heart and other circulatory organs, to adiposity or to joint disease.

This matter must be explained. It is manifestly impossible under modern business conditions for a man after his college days to keep up athletics. Time and mental preoccupation do not permit, for the god of the modern business man is an exceedingly jealous one. If he has been a top-liner or a specialist in athletic work at college, although he may still give a considerable amount of time to athletics, belonging to athletic associations and clubs, he hesitates to enter himself in contests where he is no longer able to excel or to equal old records, and as a result of this, as well as of the demands of his arduous new life, he falls from training and subsides to the arm

chair squad. Here his physical descent is, I believe, much more rapid than that of the purely untrained athlete who has exercised during his youth for pleasure or for benefit alone and who has no records to maintain.

It is a law of physiology that a useless tissue deteriorates; the greater the loss in function then, the greater the corresponding waste of the tissue in its future possibilities. What, then, is the fate of the hypertrophied muscles and other parenchymatous tissues of the overtrained and specialized athlete? This is a question easily answered. Evolution or progression in the physiological possibilities of any tissue, and especially in that of muscle, proceeds to a certain point, determined chiefly by the nutrition of those particular parts and the skill and art with which they are put into use. Such hypertrophied (morphologically and physiologically) muscle demands more nutritive supply, more than the normal, since it is called upon to give up more energy than the normal. These highly educated tissues then become expensive parasitic organs, demanding more as they supply more. It is required to deliver at the tail shaft more and quicker energy than the average; the maximum of efficiency is elevated, but at the cost of a greatly increased fuel consumption; therefore, subsequently at the normal rate it is unable to deliver with the normal fuel destruction even the normal energy output. This is simple mechanics.

What happens to this high geared tissue when it can no longer be maintained at this abnormally high grade of efficiency? Under such circumstances degeneration must and does occur, no matter what tissue be concerned, be it kidney, liver, heart muscle or voluntary muscle. There is no standing still in nature, it is progression or retrogression. If the former demand be above the normal the descent and degeneration is all the more rapid and disastrous in its effects. The over development of any part or function of the body is always at the expense of some other part. If the muscle tissue be hypertrophied, the kidneys and the liver must be accordingly increased in function in order to excrete and to carry on the metabolism for this "sport." Other organs must accordingly suffer. This is a law of nature, simple in its working but inexorable in its effects.

Degeneration in the case of the muscle tissues, which are among the more simple to be understood and the most important to consider in our problem, may occur in three ways singly or in association. It probably proceeds most frequently by a fatty degeneration or substitution, by simple atrophy and by replacement from the formation of scar or fibrous tissue. Either gives a great reduction in the power of that tissue and is practically permanent in its effects.

When the high nutritive supply of the hypertrophied muscle is no longer maintained the loss and deterioration of that tissue is proportionately rapid. The larger, the more active the muscle, when its nutriment is cut off, the more rapid is its degeneration.

Thus we find that in the specialized development of the college athlete there are very excellent physiological reasons why deterioration takes place more rapidly in his tissues than in those of an average man when once the accustomed activities of those muscles (and this applies with special grave significance to the heart muscle) is diminished or cut off. Furthermore, this hypertrophy, again referring particularly to the heart muscle, is especially liable to be carried on to a highly pathological degree, since it occurs during the adolescent growing years; the reactionary degeneration is therefore proportionately all the more marked.

I am well aware that these facts as stated will be almost universally disputed by physical trainers and by many of those who have little to do with the man as he lives and works under the severe demands of business life, years after he has left college. They are supported, however, by those physicians who have to do with these people as family practitioners or consultants in after life—even the insurance companies look askance at the ex-college athlete.

Is there, then, no way by which the enormous advantages of college athletics may be realized without these after defects which may hamper or ruin the adult life of many living under modern normal and obligatory conditions? I believe that there is. Its secret is a warning against over specialization in athletic work, the making of records while the body is still in its growing period, when an unbalancing of growth and development may readily be induced. Physical training and development must take place along slower and more general and more normal lines, it must be designed toward the evolution of a strong *proportionately* capable human body, not to the production of a human imitation of the greyhound or buffalo. When this is realized and the effort is made not to create abnormal records on the college athletic field with bodies as yet young and normally immature, but to send out of college men physically as well as mentally qualified and equipped to grapple with the necessary vigors of business life, then the oft heard tale of athlete's heart, or over strained kidneys, or of general physical breakdown will become less familiar to the physician, who now views the after life of the college athlete with anything but cheerful favor. We must learn to secure in college athletics the greatest possible benefits for the many and without the great defects for the few. In athletics, as in education, the college should equip and prepare for the most efficient life, and not strive for immediate scholastic or athletic records.

REFLEX CARDIAC IRREGULARITY AND ITS  
TREATMENT

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The treatment of any form of heart disorder is always interesting. This is true not only when the cause is comparatively simple and well defined, as in valvular disease, but especially so when the causes lie outside of the heart and are unassociated with any tangible organic lesion anywhere in the body.

At the very outset it is in order to describe in as explicit terms as possible the nature of the cardiac disease implied in the title of this paper. This may be answered by saying that it is the behavior of a presumably normal heart, at least so far as ordinary appearance goes, which is caused to beat irregularly by abnormal impulses, coming, in most instances, from neighboring organs with which it has direct nervous connections. Such cases are not infrequent, because there is no organ in the body that is so completely dominated by normal and abnormal impulses, coming from closely associated organs, as the heart.

It must not be taken for granted, however, that because there is no visible lesion detectable in the heart its functional disorders are comparatively trivial, and do not require the same remedial care and attention as its organic affections. The fact is that in many instances they are just as dangerous, but are often more amenable to judicious treatment and to the winning of permanent results than is the case in organic diseases of this structure.

Before going any further it is in place to define, in a general way, the biologic or the developmental relation of the heart to the body, for this will give us an insight into the relative vitality of the important viscera, not otherwise understood. For the biologic law that the older organs in the body are less liable to disease than the younger has an important bearing here, as will be seen from what follows.

In skullless or brainless animals the circulatory, digestive, and the respiratory organs are coordinated by separate ganglia, with intercommunicating nerve fibers; while in skulled animals this ganglionic group, although not deprived of its influence on the above named organs, is under the control of the brain by reason of its direct connection through the pneumogastric nerves. Therefore, the viscera, which are supplied by the ramifying fibers of the latter nerve, are dominated by a double nerve influence: that of the ganglionic system, and that which comes directly from the brain through the vagi.



Now the fact that the brain and the higher nerve centers are younger, and for this reason less mature and less resistant to disease than the circulatory or the digestive organs, there is no doubt that the latter share the lack of resistance inherent in the higher nerve influence, and to that extent become more susceptible to functional or nervous diseases than would be the case under opposite conditions.

The practical deduction to be made from this rather theoretical digression is that the heart in itself is not that weak, delicate, and easily disabled organ that it is generally pictured to be, but rather that it is a robust, tenacious muscular mechanism that is able to endure considerable injury and abuse. Indeed, when viewed from a practical standpoint, such a conclusion is forced on us; for not infrequently heart cases are seen with such violent, grotesque, and extravagantly irregular contortions, that seem to threaten the existence of life at any moment, yet in the course of time the whole picture is changed to one of serenity and quietude.

The full force of these deductions becomes plain when we regard the irregular contraction of the heart as a problem which has to do with a disturbance of the normal relation that obtains between the heart muscle and its controlling or coördinating nerve center in the medulla oblongata. In other words, cardiac irregularity is brought about by morbid forces which impair or partially paralyze the regulating center of the heart muscle, and the latter is left to its own unrestrained and indeterminate movements until the integrity of its coordinating center is reestablished. It is muscular action gone wrong—like a riderless, stampeded horse pursuing its own unchecked and aimless course in any direction, until it is brought under control again. Therefore, any agent or influence which gives a natural tone to the coordinating center of the heart, and enables it to generate and transmit normal impulses, will bring order out of this chaotic condition. What these agents are believed to be will presently be considered.

The kind of cardiac irregularity which is referred to in this paper chiefly belongs to that class which is caused by morbid impulses coming from the stomach and digestive organs, and which can, perhaps, be best interpreted by giving an illustrative clinical example.

A patient about or past middle life presents himself to you with a history of palpitation, nervousness, drowsiness, or a bloated or distended feeling in the gastric region after eating; gaseous eructations occasionally, and a feeling of general depression and exhaustion and of being below par for the last three or four years. Apparently he is in good health, has a good appetite, has not lost in flesh,

and looks to be a good liver, but neither drinks nor smokes to excess. Physically his heart, lungs, blood tension and urine are normal. His chief complaint is an irregular throbbing in his chest, sometimes directly after a full meal, but generally after going to bed, which sometimes continues during the night and keeps him awake, and unfits him for next day's duties; or it may come on early in the morning before rising, and continue for hours after breakfast. It does not occur often during day-time, except after eating an indigestible meal, or at least something that disagrees with his stomach. On questioning him closer it turns out that he has some shortness of breath on going up stairs, or after active exercise, during or shortly after his attacks, and also complains of an occasional pain or soreness extending down the left arm along the course of the ulnar nerve supply; that his bowels are inclined to be costive, for which he has been taking laxative medicines, and that he is not able to lie on his left side with convenience and comfort.

This case presents the salient points of a disturbance which in its present form may be regarded as a serious annoyance rather than a serious affection, yet the question arises as to whether it will remain in this state or not, and, if not, what will be its course and its ultimate outcome?

That the main source of this cardiac irregularity lies in the digestive apparatus is plain enough, but whether the cause resides in the stomach, or in the lower alimentary tract, or in both, and is of the nature of a physical or a chemical irritation of the gastric and intestinal nerve filaments, or whether it is located in the colon and is the result of a bacterial toxemia, as is now widely held, is not altogether clear. The most that can be prevised of the latter is that it is not exclusively true.

Goltz's experiment of tapping the abdominal wall of a frog and arresting its heart in diastole is a reminder as to what physical irritation of this sort exercises on the heart. Besides, there are numerous clinical examples, like flatulent gastric distension, over-exertion, fatigue, mental excitement, worry, lying on the left side of persons who are predisposed to cardiac disturbances, which are continual causes of cardiac irregularity, but which can act only as physical or mechanical irritants. On the other hand, it is well known that often in children great restlessness, nervousness, twitching, and even convulsions are promptly relieved by a brisk cathartic or an emetic which removes the irritating and offending material from the intestines or the stomach.

The treatment of this affection resolves itself into a removal of its offending or exciting cause; and, second, into measures which re-

store the normal tone of the nerve supply of the heart, and of doing the same for the general nervous system.

Under the first heading is included regulation of diet, which should consist of easily digested and nonirritating food, which may be selected from a list of ordinary foods into which milk, oatmeal, oysters, fish, vegetables and fruit should largely enter. It is not so much a question of what is eaten, if it is readily digested, as it is one of quitting before the stomach feels full or bloated.

For cardiac uneasiness, associated with flatulence, administer the following:

R	Acid carboloci	gtt. x
	Tinct. cinchon comp.	
	Tinct. card. comp.	aa. fl. ʒi
	Tinct. zingiberis	
	Tinct. calumbæ	aa. fl. ʒss
	Elix. lacto pepten	(q. s.) add fl. ʒiv

M. sig. one teaspoonful before each meal, in water.

In addition, a tablet or two of papaya may be given after meals.

As a rule constipation exists, and it is essential that the bowels should be kept solvent, notwithstanding the assertion of the patient that they are regular. Order a saturated solution of magnesium sulphate, and of this one tablespoonful in a glass of water, with a pinch of table salt half an hour before breakfast every morning or every other morning. If a tablespoonful is too much reduce the dose to a dessertspoonful.

The next step in the treatment is the administration of drug forces which possess the capacity of influencing the heart movements directly. Of all the therapeutic agents that can bring this about, strychnine, which has a special elective action for the circulatory center, stands preeminent. It undoubtedly has the power of raising the tone and tension of the circulatory center to its normal point when properly administered, whereby it is enabled to radiate impulses which change the contraction of the heart and bring its eccentric action to a halt. By proper administration it is meant that it must be given in minimum doses. Strychnine, like all other drugs, is a stimulant in minimum and a depressant or paralyzer in maximum doses. In order, therefore, to obtain its best possible stimulant effect, it is essential to begin with small doses, say gr. 1/40, and to increase them gradually until the highest stimulant point is reached, or until an approach to its physiologic limit manifests itself by symptoms of nervousness, tense feeling in the muscles of the legs, etc., after which it is advisable to recede to a slightly lower dose and to continue that quantity.

Attention must furthermore be drawn to points of tenderness over and alongside of the spinal cord, which frequently, if not always, coexist with this affection. Such areas are found in the dorsointerscapular region, about the same level as the location of the heart. Similar areas are also generally present in the lumbosacral and cervical regions. It will be found that these points have an important bearing on the affection in question. Indeed, the ganglionic nerve supply of the heart is very intimately allied with the whole spinal cord, and therapeutic measures addressed to these areas will materially add to the successful treatment of this disorder.

Additional attention must be directed to the vagi, which possess a marked influence on the heart action, and which are readily reached by the application of stimulating measures along their course in the neck.

Local stimulation applied to the spinal column and its muscular surroundings in the form of massage, mustard, friction with coarse towels, static electricity in the shape of the rapid spark or the breeze, applications of capsicum or warming plasters, etc. Probably one of the most practical measures in ordinary practice is the use of massage and rubbing with a coarse towel two or three times a day, along the whole spine until the skin becomes tender, after which it is to be applied less often; or the prolonged application of a warming plaster, with a pinch of cantharides sprinkled over its surface. On account of the well known influence of the cervical ganglia on the heart beat, it is of special importance that friction should be applied to the back and sides of the neck with a coarse towel slung around the back and sides of the neck and pulled vigorously with a see-saw motion until the skin of the neck becomes reddened and tender. This should be repeated two or three times a day.

The towel friction around the neck will also stimulate the vagi, but if more strenuous treatment is desired for them a mustard plaster may be applied on each side of the neck once a day or every other day; or a hypodermic injection of three minims of a 1½ per cent. solution of silver nitrate is given over one vagus, and in four or five days the same dose repeated on the opposite side.

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## EDITORIALS

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### ANNOUNCEMENT

Our readers will find on pages iv and v in the advertising forms of this issue of THE AMERICAN PRACTITIONER, the announcement that we are prepared to take subscriptions for the *Medical Press and Circular*, one of the three recognized leading medical weekly journals of Great Britain, and THE AMERICAN PRACTITIONER, a medical monthly devoted to medicine and surgery, at a combination price, which we believe will give to the physician greater value for the cost than hitherto offered.

*The Medical Press and Circular* is the oldest weekly medical journal in existence, with one exception, numbers among its contributors the ablest writers and acknowledged authorities, is widely read and influentially supported. It has special features of Original Contributions, Clinical Lectures, Summary of Current Literature, Foreign Correspondence and Operating Theatres, and devotes more space to Irish and Scotch medical affairs and society reports than any other London journal.

Its tone is bright, fearless and strictly impartial; its contents succinct, belongs to no clique or party and is of special interest therefore to the General Practitioner.

While THE AMERICAN PRACTITIONER, under its present manage-



ment and form is comparatively new, it already occupies an assured place among American medical monthlies. It has no affiliations with any Society or Association, contains Original Articles from month to month from the most widely known and read clinicians and practitioners, is clean, wholesome and helpful. It has no grievance or other aim than usefulness to its subscribers.

For combination price and other information see advertising pages

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### THE GREATEST NEED IN SURGERY

The greatest need of the day in surgery is not the addition of technical details in operating, but an understanding of the true nature of disease, and of its prevention and judicious management. The true role of the surgeon is to remove the cause of the patient's malady, then to place the patient at rest—now free from the influence of the pathogenic agencies, and to permit kindly nature to regenerate the part, or the whole, of his patient's body. The question of whether an operation be or be not required, is merely incidental, and the greatest surgeon is he who best knows how to restore his patients to health with the least mutilation. Very frequently this can be best accomplished by an early operation, whereby the progress of the morbid process is arrested before serious damage, either locally or to the constitution of the patient, has resulted. The patient is thus saved, not only much suffering, but also loss of time and loss of health, and his chances of living are greatly enhanced. To do an operation is merely to be an artisan. Most butchers could carve a leg more neatly than a surgeon. The difference between a mechanic and a true surgeon is, that the one follows rules, and the other is guided by a high intelligence acting upon exact scientific knowledge; in other words, the true surgeon is guided by wisdom born of knowledge and experience. This truism is so apparent that it ought to be recognized by young practitioners, but each age is characterized by the state of mental evolution to which the human mind attains at that definite period. Youth is the period of illusion and unattained ambitions. Youth may have much knowledge, but wisdom from understanding can be secured only through time and experience. Hence it is impossible

for a young man to recognize how foolish he is when he rushes into operations, not only without the wisdom born of experience, but also, as so frequently happens, without the training which can be acquired only by serving an apprenticeship; because, while the practice of a surgeon is a profession, it is also an art, and the operating surgeon must serve his apprenticeship or serve his time at the trade part of his profession, just as is true of every other mechanic, if he shall become a good workman. It is said that "fools rush in where angels fear to tread," and it is to be feared that this precept explains the mad scramble of so many young practitioners toward the field of operative surgery.

Every wise surgeon has taught the same truth: that the operator is somewhat like the poet, "born, not made," but that first he must be born, otherwise training can never make him a good operator; that is, if he has the mechanical dexterity, in addition, he must be trained by serving his apprenticeship as an assistant to a master. Thus only can the disciple hope to rise to the dignity of mastership. Until this truth shall be comprehended and put into execution, the sad spectacle which so depresses surgeons of wisdom and insight will continue to be manifested: many useless and therefore injurious operations performed by those lacking both knowledge and wisdom in their mad scramble for practice.

CHARLES P. NOBLE.

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#### PRACTISING MEDICINE BY WIRELESS

Dr. Sutton has an independent practice out on the Isle of Strife, on which is situated Cape Hatteras. This island is over one hundred miles long and from two to six miles wide, with some fertile valleys, and supports a population of from two to three hundred persons, mostly fishermen and life savers.

The wild Atlantic keeps up a continuous commotion because of wind and waves, and hence the life savers are very busy people. Dr. Sutton is a hundred and fifty miles from a hospital and one hundred miles from a city. He is monarch of all he surveys in the medical line. The most interesting part of his medical practice is that done by the wireless telegraph.

Ships that are in distress off the Cape and far out at sea, without

a medical man aboard, wire for help, and the doctor has to go to the station and prescribe for the symptoms as they are conveyed over the wireless telegraph.

Ships out five, six and seven hundred miles not infrequently call for help. Fruit steamers, coasters of all kinds going up and down needing medical assistance call up the station. In one instance a captain was knocked down and received a fractured leg. The operator called and received instruction how to treat it, and when the ship was brought into New York Harbor the condition of the injured captain was very favorable.

The following is an instance of treatment by wireless. The steamer *Esparta* at sea off Cape Hatteras March 16, 1912. Baby 13 months old. Dysentery. Passing mucus and water flecked with blood. Has a temperature. Losing weight and very ill. Have been feeding barley water. What shall we do? The doctor replied at once. The next morning, although the ship was many miles farther away, a message was received that the baby was better and improving.

While many ships carry medicine chests, not unfrequently the officers become demoralized in their efforts to administer drugs by printed instructions, but the doctor at Hatteras is ever ready to give proper advice by wireless. It may be hundreds of miles away, but his words of cheer and good counsel come through the roaring winds and dense fogs of this stormy region.

This is probably the most unique field of practice in the world.

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### POISONOUS ILLUMINATING GAS

There is an impression among many that the advent of electric lighting has greatly decreased the use of gas for illuminating purposes. This is not so; of recent years the manufacture of gas has increased enormously—being used now not only for lighting but also for heating and for cooking. Poisoning by water gas is not only by CO but also by reason of compounds of sulphur in gas (sulphurous and sulphuric acids). The effect of an excess of sulphur in gas upon human respiration may be judged by its corrosive action on book bindings in one's library; the lime in the walls fixes the sulphur

compounds from the air. As much as 80 grains of sulphur have been found in 100 feet of illuminating gas; wherefore in Massachusetts it has been enacted that gas with no more than 20 grains of sulphur (and no ammonia or sulphuretted hydrogen) shall be employed in human habitations.

Gas poisoning mortality has from time to time been even greater than that from measles; and not below that from scarlet fever. Illness from illuminating gas has sometimes been as bad as that from typhoid; and the mortality in some American cities has averaged up to the typhoid mortality. The gas poisoning death rate has been highest in winter and lowest in summer; suicides by gas have been most frequent in April and October. Prof. Sedgwick's conclusion was decidedly in favor of the old coal gas as being much safer, though its manufacture is somewhat more expensive than that of water gas; and it gives nearly as much light (16 candle power) as does water gas (18 candle power). Though the photometer shows the latter to be more luminous, its center blue flame is such that the difference in luminosity is not marked.

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### MOTORING

The comment of the press on the health-giving propensities of modern motoring has led to an investigation of the underlying causes.

As near as I can figure it out, says a London physician, the scientific fact is that the circulation is stimulated by the increased pressure of the wind acting on the body, the effect being enhanced, moreover, by variations in its force. The effect is very similar to massage, the entire body yielding to the invigorating contact. The cheeks at first take on a slightly white tinge, owing to the little blood vessels of the skin being somewhat constricted; the color deepening a little later to a healthy flush as the vessels become enlarged in response to the increased supply of oxygen.

This quickening of the blood affects the brain also, and as it responds quickly, the rejuvenating process starts without delay. The unusual quantity of oxygen in the system has the result of banishing depression and moodiness, as well as soothing nerves. The fact

that modern automobiles are of low design and safe construction contributes to the sense of security which relieves the mind of worry and makes possible complete enjoyment.

By means of motoring fresh ideas are brought to the mind of the patient, and his efficiency increases. The influence of new surroundings, pleasant acquaintances and a change of conditions is most beneficial. The resultant stimulating effect on our systems removes much that tends to despoil our lives of their natural vivacity and brightness.

Among the noticeable results of motoring is its power for curing insomnia. As the human system has been prepared by the soothing effect on the nerves, the gentle exercise of certain faculties, combined with the calling into action of others, induces a healthy coordination and restful fatigue. As insomnia is usually due to the overactivity of the brain after the activity of the body has ceased, the effect of the restful diversion which motoring affords is to bring them into closer harmony and induce perfect sleep.

Of the ailments caused by germs that can be benefited by motoring there are many. Fresh air and sunlight are inimical to many germs, and advantage of this fact is taken in the treatment of various diseases. It is, therefore, not surprising that motoring has proved a most useful agent in the treatment of these germ produced diseases. The germs cannot live in a human body that receives proper exercise, food and an ample supply of oxygen. As dandruff and baldness of the head are often produced by germs, the trouble may not only be alleviated, but often cured by open air driving in a motor car.

It must not be inferred that motoring is a cure for everything, but there is no denying the fact that looked at from the broad point of view, motoring is undoubtedly healthy and health giving.



## DIGEST OF CURRENT MEDICAL LITERATURE

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*Eradication of Typhoid Fever.*—McLaughlin (*Boston Medical and Surgical Journal*, May 23, 1912), presents tables that show a startling contrast between the death rate from typhoid fever in Europe and in the United States. In one of these the death rate in fifteen large Northern European cities is shown to range from 1.3 to 5.6 per 100,000 of population, while that of the fifteen largest American cities ranges between 8.8 and 58.7 per 100,000. To attain the low rates for typhoid fever which are reported for the Northern European cities seem to be an ideal difficult of accomplishment in America, yet he thinks there is no reason why we should not accomplish it and go even farther toward the complete eradication of the disease. Theoretically the eradication of typhoid fever is possible by the ideal execution of two measures, safe disposal of human excreta, and disinfection of the hands of those who handle the food and drink of others. The former is far from being attained, but is an ideal toward which we may aspire, although much education in personal hygiene is necessary before we may hope that the individual carrier will protect others voluntarily by disinfecting his hands at the proper time. Much of the typhoid fever is preventable by the installation of a safe water supply. This is shown by a comparison of twenty-two large American cities with good water supply, with twelve in which the water supply is of a doubtful character. The elimination of impure milk is another means of prevention. After these factors have been eliminated there remains the "residual" typhoid, in which the greatest factor is the more or less direct transference of the germs from the fresh feces or urine of one person to the alimentary canal of another. The fly is a factor in this transference, especially in the country, the fingers and food are others.

The moral duty of the physician to report cases promptly as distinguished from the legal duty, is pointed out, as well as the fact that he should make a much wider use of the clinical laboratory as a routine procedure, especially in atypical cases. The householder needs to be taught the danger inherent in the excreta of the sick. Hospitalization should be insisted on when there is inability to understand, or failure to carry out the precautions directed. Educational effort must be made to obtain control of typhoid carriers. McLaughlin urges that a campaign of education in regard to the eradication of typhoid fever should be entered into; that it should be systematically planned and should press into service every possible agency, the press, clergymen, settlement workers, and school teach-

ers taking a prominent part, to impress two primary facts: 1. Contamination of food or drink by careless fingers may be equivalent to homicide; 2, such dire results can be avoided by careful cleansing of the hands and fingernails after using the toilet and before handling food and drink. Such a campaign of education would reduce not only the prevalence of typhoid fever, but also of bacillary dysentery, diarrhea, and enteritis of children.

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*Bathing Habits.*—At the Royal Sanitary Congress held at York, England, Dr. Quine of Manchester (*Journal American Medical Association*, August 31, 1912) read a paper on the degree of personal cleanliness among different classes of people, the result of elaborate inquiry. Among 40,000,000 of our people, he said, the basin was the only washing vessel. "We English people are not nearly so clean as we are supposed to be." The bath was not nearly so popular as was supposed. In some hotels not more than 1 per cent. of the guests use the bath on any day; in others the percentage was stated to be as high as ten. Cold baths were used almost exclusively by men. The order of frequency in which the different classes of persons took baths was also very interesting. Those who had the daily bath habit seemed to belong principally to the type of public school men, and were mostly the young and early middle aged. As years increased the daily bath habit seemed to decline. Military men came first, with racing men a good second. No evidence was discovered which would lead one to conclude that bathing accommodations were unduly taxed whenever a congress of medical men or sanitarians was held in any town. Nor was there sufficient evidence forthcoming to form any general opinion as to the bathing habits of the clergy; their average did not seem to be high. But no doubt the cost would, in their case, be an important factor. Other professional men were difficult to distinguish. Commercial men did not appear to have acquired the habit of the daily bath. In nationalities the following appeared to be the order of frequency of bathing: Scotchmen, Englishmen, Irishmen, American women, English women, American men, Frenchmen, Germans. It seemed to be agreed that American women were less bashful than English women, and were not afraid to pass along corridors to the bathroom, while English women had very strong objections to doing so, and that this accounted for the fact that American women made greater use of the bathroom. The latter were also apparently better provided with elaborate dressing gowns than were the English women. He found no evidence that the comparative infrequency of bathing by Ameri-

can men was due to bashfulness. The sanitary reform which was most urgently required in this country was increased facilities for personal and domestic cleanliness in the homes of the people by improved appliances.

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*What Are We?*—Barr, in the *British Medical Journal*, July 27, 1912, Abst. in *New York Medical Journal*, while presenting no observations in themselves new, places an interpretation upon some well known but too little remembered facts which it will be well to note. He remarks that we medical men are ever more or less successfully adapting the environment to the individual, and affording the weakling an equal chance of survival with the strong; in fact, often a much better chance, not only of surviving, but of multiplying, for the strong have to take all the risks both in supporting themselves and in maintaining the decadent. We have successfully interfered with the selective death rate which Nature employed in the elimination of the unfit, but, on the other hand, we have made no attempt to establish a selective birth rate so as to prevent the race being carried on by the least worthy citizens. The race must be renewed from the mentally and physically fit, the moral and physical degenerates should not be allowed to take any part in adding to the race. Above all, we must breed for intelligence. The laws of heredity should be widely taught, so that those with hereditary blemishes may consider their moral responsibility in bringing children into the world. It is a question of quality rather than quantity. In the past fifty years there has been an actual and relative increase in insanity which is becoming more and more noticeable in the decadent stocks. This tends to elimination, and so tends to retain the average level of the population, but much harm is done before this elimination is accomplished. There has been a similar marked increase in the numbers of the feeble minded. This class, although their average longevity is not great, are very prolific, and are not guided by economic considerations; they merely gratify their natural passions without regard for the consequences, and start reproduction at an early age. The same proclivity is noticeable among the wastrels, the unemployed, the paupers, and the ne'er-dowells. The hard-worked wage earner does not have a fair chance, for he has not only to support his own family, but is taxed almost out of existence to maintain the extravagance of wasteful governments, and of a sympathetic irrational public. We should not allow our indulgence to degenerate into license, and while we look after the wastrels of the present generation, and thus gratify our sympathies, we have no moral right to leave a legacy of mental obliquity and of physical

decadence to weigh upon the next generation. The ignorant plan of affording equal opportunities to all, opportunities of which the great majority cannot make use, has cost the country an enormous sum of money—money wasted. The feeble-minded individuals are a growing incubus on the nation, and should be dealt with in the most humane manner by their sterilization or segregation.

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*New Drug for Carcinoma.*—Letulle (*Bulletin de L'Académie de Médecine*) presents a report concerning a compound of arsenic and phosphorus with albumin prepared by Gnezda and designated as arphoalin. It is a brown, tasteless, insoluble powder, and contains 6.3 milligrams of arsenic and about 6 milligrams of phosphorus to every gram of albumin. Applied locally to ulcerated or suppurating tumors it promptly arrests hemorrhage and pus formation and removes odor. Microscopically, Gnezda found that epitheliomatous cells under its influence underwent rapid fatty degeneration, while the stroma soon showed partial necrosis, with gradual healing of the lesion thereafter. Internally, the dose used was 0.25 gram, an hour after one, two, or even three meals, according to the patient's general condition. Under this treatment rapid necrotic softening of a carcinoma of the neck in a man was noted, as well as healing of a recurrent carcinoma of the left check in a woman of eighty-seven years. In the latter case the drug was also applied directly to the ulcer for a month. No further recurrence had been observed two years later.

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## THERAPEUTIC PROGRESS

**Absorption of Phenol by Animal Charcoal.**—Lubenetzky (*Roussky Vrach*, April 28, 1912; Abst. in *N. Y. Med. Jour.*) found that animal charcoal abstracts phenol from a watery solution. Thus by adding 5 grams of animal charcoal to 100 c.c. of a 3 per cent. watery solution of phenol, 72 per cent. of the phenol will be taken up by the charcoal. By the addition of more water, or by washing the charcoal, the phenol may be recovered, showing that the absorption is purely mechanical and bears a definite relation to the quantity. Experimenting on animals, it is found that when phenol is administered simultaneously with charcoal the latter takes up the phenol, but gives it up under the influence of the fluids in the digestive tract. However, this abstraction of the phenol and the cleavage of the phenol from the charcoal takes place so slowly that the organism gets rid of the phenol without any toxic effects. Animal charcoal should prove, not only an excellent antidote in phenol poisoning, but a detoxicating agent after such poisons as morphine, strychnine, ptomaine, etc.

**Collargol in Sepsis and Carcinoma.**—Kausch (*Deutsche Med. Wochenschrift*, August 29, 1912) declares that in septic infections collargol, when given intravenously, relieves sepsis with all its concomitant symptoms. He states that the action is so certain that if after injections satisfactory results are not obtained, the existence of pus foci must be assumed. It is also effective in pyemic processes. This was shown in two cases of postoperative empyema and mastoiditis. If the symptoms of infection return, the injection is to be repeated.

When the remedy is used in carcinoma it produces a typical local and general reaction. He states that he is not prepared to say whether collargol possesses a curative effect.

**Phenyldimethylpyrazolonamidomethenacidsulphon Sodium, in Acute Articular Rheumatism.**—Staffeld (*Münchener Med. Wochenschrift*, August 13, 1912) reports the use of this remedy on himself for rheumatism, he suffering from a third attack. He found that the attack, which usually lasted from three to four weeks, was relieved by four doses. This experience prompted him to use the remedy in a series of fifty cases of acute articular rheumatism with pronounced success. There were no unpleasant side or byeffects on either heart or stomach. The drug can be given per rectum with equally good results. He advises doses of 15 to 30 grains three times a day.

**Massage in Skin Diseases.**—Rosenthal (*Medizinische Klinik*, July 7, 1912) remarks that massage has not received the attention it deserves in the treatment of skin diseases. It has great influence upon all anatomical parts and on the physiological functions of the skin, especially upon the regeneration of elastic tissue. Massage should be used in all affections which are the result of hypertrophy of the collagen; it regulates the blood and lymphatic system, exerting a beneficial influence upon the nervous elements of the skin. Massage, furthermore, is effective in the hypertrophies of the sebaceous glands and increases tonus and metabolism.

**Neosalvarsan.**—Wechselbaum (*Deutsche Med. Wochenschrift*, August 1, 1912) reports successfully injecting neosalvarsan into the lumbar sac of the cord. In no case was there any reaction. Costelli, in the same journal, August 29, 1912, details experiments on rabbits with neosalvarsan, in which



he found that the remedy, because of its neutral reaction, decreased irritation when brought into contact with delicate mucous membrane, such as the meninges. Salvarsan, he declares, is, on the other hand, a strong irritant.

**Adrenalin in Asthma and Chronic Bronchitis.**—Ephraim (*Deutsche Med. Wochenschrift*, August 1, 1912) declares that adrenalin is an invaluable aid in the treatment of bronchial asthma and chronic bronchitis. He claims that the possibilities of its usefulness have not yet been attained. Its effectiveness depends on the method of its application; it is least effective when inhaled, more effective, but its action only temporary, when given subcutaneously; most lasting when applied directly to the diseased bronchi.

**Relation of Diet to Heart and Bloodvessel Disease.**—Bishop (*Medical Record*, September 28, 1912) advises a bread and butter diet with milk to supply the necessary liquid, and enough cheese to meet the protein requirements, without an excess of either carbohydrates or heat units. Bread and butter alone yields an excess of carbohydrates, taxes the digestion, induces excess weight and other evils, but given with cheese it forms a balanced ration upon which the patient will thrive and be comfortable.

**Treatment of Smallpox by Tincture of Iodine.**—Newell (*Indian Medical Gazette*, September, 1912) writes that he paints the exposed skin of those suffering from smallpox in the early stage with tincture of iodine two or three times a day for a few days, and asserts that this treatment not only lessens or prevents pitting, but modifies the course of the disease, lessens pain and fever, disinfects the parts, but also controls the spread of the disease and lessens the mortality.

**Noviform.**—Million (*Münchener Med. Wochenschrift*, August 20, 1912) reports noviform an adequate substitute for iodoform, possessing all of its good qualities without its disadvantages. He proved it to possess deep antibacterial action in the tissues; harmful results were never noticed, the wound was not irritated, surrounding tissues were not affected. The drug is hygroscopic and a deodorant.

**Milk Depots in London.**—Dr. Janet Lane Clapton, of Kings College, London, stated at the International Convention on Hygiene and Demography at Washington, D. C., in September, that the establishment and operation of milk depots in England did not tend to encourage the natural feeding of babies by mothers, and consequently could not be said to be of assistance in reducing infant mortality in the congested centers of England.

**Nutritional Disturbances in Infants Due to Flour.**—Salge (*Jahrbuch für Kinderheilkunde*, August, 1912) calls attention to the fact that a diet rich in flour or carbohydrates and poor in proteids and fat can cause serious nutritional disturbance in infants. Such children look fat, but have a pasty complexion, while their resistance to infections of various kinds is very low.

**Chorea Cured by Salvarsan.**—Pavloff (*Roussky Vrach*, April 28, 1912) reports a case of general chorea successfully treated with salvarsan. He collected from the literature records of ten similar cases in which this drug was successfully employed.

**Hemoptysis.**—Gilbert (*Paris Médical*, July 13, 1912) considers a combination of epinephrine, calcium chloride, and opium to be almost specific; other remedies have been overrated. Locally, ice and mustard are valuable. If these fail ipecac and tartar emetic may stop the flow.

## AT YOUR LEISURE

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HOW THE QUINTESSENCE CURED THE SICK WITH A SONG  
(Rabelais 1490-1553 A.D., Book 5, Chapter 20)

The captain showed us the queen, attended with her ladies and gentlemen, in the second gallery. She looked young, though she was at least eighteen hundred years old; and was handsome, slender, and as fine as a queen, that is, as hands could make her. He then said to us: "It is not yet a fit time to speak to the queen: be you but mindful of her doings in the meanwhile."

With respect to the time when Aristotle flourished, who was the first coiner of the word *entelechy*\*, you have kings in your world that fantastically pretend to cure some certain diseases; as, for example, scrofula or wens, swelled throats, nicknamed the king's evil, and quartan agues; only with a touch. Now our queen cures all manner of diseases without so much as touching the sick, but barely with a song, according to the nature of the distemper. He then showed us a set of organs, and said that when it was touched by her those miraculous cures were performed. The organ was indeed the strangest that ever eyes beheld; for the pipes were of cassia fistula in the cod; the top and cornice of guaiacum; the bellows of rhubarb; the pedas† of turbeth‡, and the clarice of scammony.

While we were examining this wonderful new make of an organ, the leprous were brought in by her abstractors, spodizators, masticators, pregustics, tabachins, chachanins, neemanins, rabrebans, nercins, rozuins, nebidins, tearins, segamoinis, perarons, chasinins, sarins, sotins, aboth, enilins, archasdarpenins, mebins, chabourins, and other officers, for whom I want names; so she played them I do not know what sort of a tune, or song, and they were all immediately cured.

Then those who were poisoned§ were had in, and she had no sooner given them a song but they began to find a use for their legs, and up they got.

Then came on the deaf, the blind and the dumb, and they too were restored to their lost faculties and senses with the same remedy; which did so strangely amaze us (and not without reason, I think) that down we fell on our faces, remaining prostrate, like men ravished in ecstasy, and were not able to utter one word through the excess of our admiration, till she came, and having touched Pantagruel with a fine fragrant nosegay of red roses, which she held in

\*The Standard Dictionary defines *entelechy*: (a) Actuality or complete realization, as opposed to potentiality or power (*dynamis*); the actual as based upon the virtual or potential; in the Aristotelian teleology, a term used to bring out the opposition of matter and form in their relation to generation and growth. (b) Completeness in general, or a principle that gives completeness or perfection.

When Aristotle and the Paripatetics call the soul an *entelechy*, they mean that the soul is the principle by which the body actually lives and is sentient.

†Pedals.

‡An East Indian plant resembling jalap.

§I am of the opinion that poisoned here refers to the various forms of constitutional syphilis, particularly bone lesions.

her hand, thus made us recover our senses and get up. Then she made us the following speech in Byssin words, such as Parisatis desired should be spoken to her son Cyrus, or at least of crimson alamode.

The probity that scintillizes in the superficies of your persons, informs my ratiocinating faculty, in a most stupendous manner, of the radiant virtues, latent within the precious caskets and ventricles of your minds.\*

For, contemplating the mellifluous suavity of your thrice discreet reverences, it is impossible not to be persuaded with facility, that neither your affections nor your intellects are vitiated with any defect, or privation of liberal and exalted sciences; far from it, all must judge that in you are lodged a cornucopia, and encyclopedia, an unmeasurable profundity of knowledge in the most peregrine and sublime disciplines, so frequently the admiration and so rarely the concomitants of the imperite vulgar. This gently compels me, who in preceding times indefatigably kept my private affections absolutely subjugated, to condescend to make my application to you in the trivial phrase of the plebeian world; and assure you, that you are well, more than most heartily welcome.

I have no hand at making of speeches, quoth Panurge to me privately: prythee, man, make answer to her for us, if thou canst. This would not work with me, however, neither did Pantagruel return a word: so that Queen Whims, or Queen Quintessence (which you please) perceiving that we stood as mute as fishes, said: Your taciturnity speaks you not only disciples of Pythagoras, from whom the venerable antiquity of my progenitors, in successive propagation, was emanated, and derives its original; but also discovers, that through the revolution of many retrograde moons, you have in Egypt pressed the extremities of your fingers, with the hard tenants of your mouths, and scalptized your heads with frequent applications of your unguicules. In the school of Pythagoras, taciturnity was the symbol of abstracted and superlative knowledge; and the silence of the Egyptians was agnized as an expressive manner of divine adoration: this caused the pontiffs of Hierapolis to sacrifice to the great deity in silence, impercussively without any vociferous or obstreperous sound. My design is not to enter into a privation of gratitude towards you, but by a vivacious formality, though matter were too abstract itself from me, excentricate to you my cogitations.

Having spoken this, she only said to her officers: "Tabachins, A panacea"; and strait they desired us not to take it amiss if the queen did not invite us to dine with her; for she never eat anything at dinner, but some categories, jecabots, emmins, dimions, abstractions, harbrins, chelemins, second intentions, carradoths, antitheses, metempsychoses, transcendent prolesies, and such other light food.

Then they took us into a little closet, lined through with alarums, where we were treated God knows how. It is said that Jupiter writes whatever is transacted in the world on the dipthera or skin

\*M. Duchat makes the original run thus: The probity that scintillizes in the circumference of your words, informs my ratiocinating faculty of the virtue latent in the center of your mind.

of the Amalthæan goat that suckled him in Crete, which pelt served him instead of a shield against the Titans, whence he was nicknamed Aeziochos. Now as I hate to drink water, brother toppers, I protest it would be impossible to make eighteen goat skins hold the description of all the good meat they brought before us; though it were written in characters as small as those in which were penned Homer's Iliads, which Tully tells us he saw enclosed in a nutshell.

For my part, had I one hundred mouths, as many tongues, a voice of iron, a heart of oak, and lungs of leather, together with the mellifluous abundance of Plato; yet I never could give you a full account of a third part of a second of the whole.

Pantagrue was telling me that he believed the queen had given the symbolic word used among her subjects to denote sovereign good cheer, when she said to her tabachins: "A panacea; just as Lucullus used to say, in Apollo, when he designed to give his friends a singular treat; though sometimes they took him unawares, as among the rest, Cicero and Hortensius sometimes used to do."

Is it not a strange coincidence that this, written at about the time the world was interested in the discovery of America, bears so much resemblance to the exploiting of that country four centuries later by Mother Eddy? Is it not passing strange that Satire should become Real in four centuries?

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#### AN INTERESTING CASE OF HEREDITY

In "The Winter's Tale," Act II, Scene 2, we find the following:

GAOLER: Madam: if't please the queen to send the babe.

I know not what I shall incur to pass it,  
Having no warrant.

PAULINA: You need not fear it, sir:

This child was prisoner to the womb, and is  
By law and process of great nature thence  
Freed and enfranchised; not a party to  
The anger of the king, not guilty of,  
If any be, the trespass of the queen.

It will be remembered that Leontes, King of Sicilia, in a jealous passion, accused and imprisoned the Queen Hermoine on the wrongful pretext of intimacy with his friend and guest Polixenes, King of Bohemia. While in prison the Queen gives birth to a daughter, Paulina, a lady at the court as well as a firm friend of the Queen, is incensed, and through a desire to vindicate the chastity of the Queen takes the babe from its mother, then in prison, and presents it to the King, forcibly exclaiming, Act II, Scene 3:

PAULINA:

It is yours:

And, might we lay the old proverb to your charge,  
So like you, 'tis the worse. Behold my lords,

(*Speaking to the audience*)

Although the print be little, the whole matter  
And copy of the father, eye, nose, lip;  
The trick of's frown; his forehead; nay, the valley;

The pretty dimples of his chin and cheek; his smiles;  
 The very mould and frame of hand, nail, finger;  
 And thou, good goddess Nature, which hast made it  
 So like to him that got it, if thou hast  
 The ordering of the mind too, 'mongst all colors  
 No yellow in't, lest she suspect, as he does,  
 Her children not her husband's!

Later the Queen is brought before the King and defends herself thus:

HERMOINE: To me can life be no commodity:  
 The crown and comfort of my life, your favor,  
 I do give lost: for I do feel it gone,  
 But know not how it went. My second joy  
 And first-fruits of my body, from his presence  
 I am barr'd, like one infectious. My third comfort,  
 Starr'd most unluckily, is from my breast,  
 The innocent milk in its most innocent mouth,  
 Haled out to murder: myself on every post  
 Proclaim'd a strumpet: with immodest hatred  
 The child-bed privilege denied, which 'longs  
 To women of all fashion; lastly, hurried  
 Here to this place, i' the open air, before  
 I have got strength of limit.

The child referred to was not only banished,—commanded by the King, her father, to be murdered through being abandoned in a wilderness,—but thought to have died. She was, however, rescued by a shepherd, grew to womanhood and later married to a prince of the country in which she grew up. The story of the courtship of the prince, interference of the King, his father, the flight under the escort of an old servitor of the King, their arrival at Sicilia, the country of her mother and father, the reception of Florizel the prince and Perdita by the King is so pure, sweet and wholesome that we could wish our readers no greater pleasure than the reading of it as Shakespeare wrote it. Soon Perdita learns her history and is acknowledged by the King her father.

Later she was taken to view her mother's statue—kept in the home of the faithful Paulina—who was supposed to have died in prison shortly after the trial at which she defended herself as but briefly detailed above. The King, Perdita's father, was present. The princess put forth her hand and exclaimed:

PERDITA: . . . Lady,  
 Dear Queen, that ended when I but began,  
 Give me that hand of yours to kiss.

After marveling at the altogether lifelike appearance of the statue, Leontes is almost overcome with remorse. Fearing the effect upon his mind, Paulina seeks to draw the curtain to hide the sight, but the King forbids her. Then:

PAULINA: Music, awake her; strike!  
 'Tis time; descend; be stone no more; approach:



Strike all that look upon with marvel. Come,  
 I'll fill your grave up: stir, nay, come away,  
 Bequeath to death your numbness, for to him  
 Dear life redeems you. You perceive she stirs:  
 (*Hermoine comes down*)

Start not; her actions shall be holy as  
 You hear my spell is lawful: do not shun her  
 Until you see her die again; for then  
 You kill her double. Nay, present your hand:  
 When she was young you woo'd her; now in age  
 Is she become the suitor?

LEONTES: O, she's warm!  
 If this be magic, let it be an art  
 Lawful as eating.

The reunion of the King and Queen, marriage of Perdita and Florizel, as well as Paulina and Camillo, ends this, a most interesting and beautifully told story.

#### WE HOPE THAT HE GOT IT

"Papa," said Georgie, "it worries me awful to think how much trouble I give mamma."

"She hasn't complained."

"No, she's very patient. But she often sends me to the shops for things, and they are a good way off, and I know she gets cross waiting when she's in a hurry."

"Not often, I fancy."

"Oh, she's nearly always in a hurry. She gets everything all ready for baking and finds at the last minute she hasn't any yeast, or she gets a pudding all mixed and finds she hasn't any nutmeg or something; and then she's in an awful stew, cause the oven is all ready, and maybe visitors are coming, and I can't run a very long distance, you know; and I feel awful sorry for poor mamma."

"Humph! Well, what can you do about it?"

"I was thinking you might get me a bicycle."

—*Pearson's Weekly*.

#### THE IMPOSSIBLE BARBER

TO THE EDITOR. *Sir*: The barber who shaved all those in the town except those that shaved themselves wore a beard, didn't he?

HIRSUTUS.

No, not as we understand the problem. If the barber was one of those that shaved themselves, he could not have shaved himself, according to the terms of your question. On the other hand, if the barber did shave himself, he must have been among those who were not shaved by the barber.

## MISCELLANY

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### RACE CULTURE

Why should we not have certified, pedigree babies? We have colts and pups and calves with certified pedigree, that are guaranteed to produce all the good points of their ancestors," says the *Journal of Pediatrics*, June, 1912.

Does not every father and mother hope that their children are going to inherit all their physical and moral virtues, and escape their blemishes? But what assurance have they that the child will have even the physical stamina to live past his second year?

Oliver Wendell Holmes has wittily said that the first essential in healthy stock is to choose\* healthy grandparents. Our young people are proud to marry into wealthy and distinguished families, and this is well, for such families usually imply ancestors with powerful traits of character; but how many to-day can pick out the qualities in their companions that show that they have descended from grandparents who are mentally, morally, and physically strong. The keynote of the nation's progress to-day is Eugenics and Euthenics. President Taft, before the Tuberculosis Congress at Albany, N. Y., said: "The agricultural department is spending fourteen or fifteen million dollars to tell the farmers how they ought to treat the soil and how they ought to treat their cattle and horses with a view of having good hogs and good cattle and good horses. Now there is nothing in the Constitution especially about hogs or cattle or horses, and if, out of the public treasury at Washington, there can be established a department for that purpose, it does not seem to be a long step or a stretch of logic to say that we have the power to spend the money in a bureau of research to tell how we can develop good men and good women."

There is some sense in this. When we realize that the Government spent in a year, \$176,000,000 to prevent and protect the country against war and only \$15,000,000 to protect the people against preventable disease, we can see why more people die of preventable diseases than in war."

New York State alone spent \$568,000 to preserve the fish and game of the State and \$170,000 for health.

Dr. Davenport says the human babies born each year constitute the world's most valuable crop. Here and there, by chance, well-mated parents produce a wonderful child who has sufficiently strong stock and good care to weather the diseases of childhood, and we have a Fulton, a Lincoln, an Edison to lead the nation slowly for-

ward; but with what bounds could we advance if we could be as certain of raising everywhere as good, strong stock in the nurseries of our nations as we do on the ranches of careful cattle breeders.

About two and half million babies are born in the United States each year. Nearly half a million die in their first year, and half of all are dead before they reach their twenty-third year, before they have had a chance to do either much good or evil in the world. Of the one and a quarter millions who live, a certain proportion will become industrious citizens of average ability, and the smaller proportion will be the leaders of men, the doers of deeds, while there will be a very definite proportion that will, by reason of their heredity, become criminals, epileptics, paupers, alcoholics.

The other more healthy and able people of the United States have to support these incapable ones. There are about half a million insane and epileptic, feeble-minded, blind and deaf; there are 80,000 prisoners and 100,000 paupers—all of whom cost the United States over a hundred million dollars a year.

When young people marry in cities, especially in America, there may be almost no knowledge of the other's ancestry, even of their immediate family. But the young man or woman of to-day has the right to know the ancestry of both his or her child's parents. Each has a right to exact a health standard as well as a moral one. It would be a great help if family genealogies were kept, showing what each individual died of and from what diseases he had suffered.

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#### A DOUBLE SINGING VOICE

At a recent meeting of the Berlin Laryngological Society (*Berliner klinische Wochenschrift*, April 29, 1912) a man was shown by Scheier who was able to sing simultaneously in two voices. It was agreed that the phenomenon was absolutely unique. The subject was an opera signer who had long appeared in vaudeville as the "man with the double throat." His normal voice is a baritone of wide range. In singing he is able at will to accompany himself in a higher key. Thus far diplophonia has been regarded as a phenomenon which is purely pathological, and the case in question is the first known exception to this generalization. The singer has been examined by many well known laryngologists, but as yet no light has been thrown on the double voice production. The vocal cords red- den during the act. In demonstrating his faculty he sings an air first in the normal, then in the double voice. Unfortunately, when the laryngoscope is in position for study the double singing is produced with great difficulty and the artist would not permit the use

of cocaine. The possession of the double voice makes it easy for him to imitate various instruments. As this class of mimetics and also ventriloquists have already been studied profitably with radiography, the thought lay near to use this diagnostic resource in the present subject. The skiagrams showed enough to suggest to Scheier that the double voice was produced by the simultaneous action of the vocal cords and epiglottis. Others have suggested that the extra voice might have been produced with the soft palate or ventricular bands. It is highly improbable that it can be produced by the vocal cords alone. As the vibrations cannot be seen their causation must remain conjectural.

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#### CHANGES INDUCED IN BLOOD BY FEEDING

These experiments were undertaken by Gustav Mann and John G. Gage in the Physiological Department of the Tulane University of Louisiana, and the results thereof published in an article by these authorities in the *Lancet*, October 19, 1912, with the view of ascertaining whether feeding would produce changes in the blood which could be demonstrated microscopically apart from the increase in number of white corpuscles which are shown to occur. Among the experiments undertaken were the changes in the blood of frogs after feeding on sanatogen. As for the changes in the white blood cells, those of frogs correspond so closely with those found in man that they need not be described in detail. The decrease in size and numbers of eosinophile granules was especially well marked. The changes produced in the red blood cells by feeding frogs on sanatogen were well marked. It was further found that sanatogen stimulates blood cells to undergo nuclear division, which during the early period is mostly amitotic. The conclusions arrived at from the blood changes in frogs after feeding them on sanatogen were that it is evident that it acts as a strong stimulus as far as the recuperative powers of the blood are concerned. How it behaves towards other tissues will be shown later. Whether this stimulative action depends upon the administration of a rich protein food, caseinogen, or whether upon glycerophoric acid, or the fortunate combination of these two radicals is a question which Mann and Gage hope soon to be able to answer definitely.

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#### CHINESE AND AMERICAN PUZZLES

An American in China writes to the *New York Sun* as follows: "The things that puzzle and perplex us in the Chinese become, on closer knowledge, simple, and so, no doubt, do we perplex and puzzle the Chinaman till he gets to know us better. A mandarin from the

interior dined with me the other evening. In his honor the dinner was Chinese. One course consisted of eggs apparently whole, yet within them was a delicate salad of mushrooms, lettuce, nuts and mustard. 'It puzzles me,' I said to the mandarin, 'how all these things are put inside a whole egg.' My guest took up an uncut magazine from a table. 'But it puzzles me still more,' he said, peering between the leaves, 'how you manage to put the printing in here!'"

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#### EUTHENICS, A NEW SCIENCE

New sciences develop nowadays almost as rapidly as mushrooms over night, says the *Boston Med. and Surg. Journal*, September 19, 1912. Some years ago geriatrics was added to the list of medical specialties. At present eugenics, with its variant aristogenics, looms largest, at least in popular interest. The latest new science is that of euthenics, which deals with race improvement through environment. Eugenics is concerned with selection for the heredity of future generations, euthenics with the betterment of the present generation by modification of its environment. There seems a special appropriateness in this new science, since there is rather a tendency at present to overemphasize the importance of select germ-plasm. As a matter of fact there is ultimately no escape from the inexorable law of survival of the fittest. Only it does not necessarily follow that the type best fitted to a given environment will be the highest type. Man can modify his environment much more readily than his heredity, and euthenics aims by such judicious modification to establish such environments that the highest types will be best fitted to them and will therefore survive.

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#### HONORARY PRESIDENT BRUCHESI INSTITUTE, MONTREAL

We are greatly pleased to announce that the Bruchesi Institute of Tuberculosis of Montreal, named in honor of His Eminence the Archbishop of Quebec (Bruchesi), at its annual meeting the other day made Dr. S. Adolphus Knopf, of New York City, Honorary President of the Medical Board. The Bruchesi Institute is doing a magnificent work among the French-Canadian tuberculous population. Besides taking care of a great number of ambulant cases in a splendidly equipped dispensary, it has a fine preventorium at some distance from Montreal, and does a great deal of educational propaganda among children and adults by popular lectures and social workers.



## BOOK REVIEWS

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**A Text-Book on the Practice of Gynecology.** For Practitioners and Students. By W. EASTERLY ASHTON, M.D., LL.D., Professor of Gynecology in the Medico-Chirurgical College of Philadelphia. With ten hundred and fifty new line drawings illustrating the text by JOHN V. ALTENDER. Fifth Edition thoroughly revised. Price, cloth, \$6.50 net; half morocco, \$8.00 net. Philadelphia and London: W. B. Saunders Company, 1912.

Dr. Ashton's work on the practice of gynecology may now be regarded as one of the standard works by English writing authors. Since 1905 it has gone through five editions, a good criterion as to the esteem in which it is held. The aim of Dr. Ashton in writing the book in the first instance was that he believed that there was a place for a Practice of Gynecology which aimed to take nothing for granted in describing gynecologic disease, and which not only stated what should be done in every case, but also give directions and illustrations so explicit that they might be intelligently followed. There is no doubt that Dr. Ashton accurately gauged the views of the majority of the medical profession and that he is entitled to full praise for his acumen. *En passant*, it may be said that it would be as well if more medical authors took the same pains and did not attribute to their readers the possession of special knowledge of the subject whereon they discourse. Too many writers take it for granted that the subject with which from the nature of things they are intimately acquainted must be also plain to their readers, and therefore neglect to enter into lucid explanations. The last edition of Professor Ashton's work is excellent in almost all respects, and especially is it in that part which dwells with cancer of great value. In the present edition the palliative treatment of cancer of the uterus and vagina is fully discussed and the use of acetone and sulphate of quinine advised. As for radical measures, the author has this to say: It is only in the early stages, when the disease is limited to the uterus, that hysterectomy is indicated, and if the vagina, the rectum, the bladder, the broad ligaments, or the cellular tissue of the pelvis is involved, a radical operation is useless. A very instructive chapter is that on indoor exercise. Dr. Ashton points out that while the value of outdoor exercise for women is thoroughly recognized and is instrumental in producing a type of women who have healthy, vigorous bodies and organs, the beneficial effect of indoor exercises, either as a supplement to outdoor exercise or as a substitute for it, in women of limited means is frequently overlooked by the profession, and the benefit which may be derived from this therapeutic means, therefore, not taken advantage of in many cases in which it is clearly indicated. Referring to cystitis, it is pointed out that its differential diagnosis must be carefully made, and that a mistake in the diagnosis may readily be made if the examination is carelessly or ignorantly conducted. It is the close attention to details that marks the able gynecologist. For example, the error is frequent, but not the less dangerous, in which dysuria is diagnosed as essentially a symptom of uterine or ovarian disease. The skillful gynecologist learns to discriminate between all diseases of the urinary tract and to comprehend fully all the details of inspection of the interior of the bladder. The evil effects of tight lacing are considered and the modern straight front corset is compared with the old fashioned corset, which constricts the abdomen at the waist, to the advantage of the former. Concerning the value of blood findings, the author makes use of the following pregnant words: "So far as surgical conditions are concerned, the blood findings are not pathognomonic in character and are too contradictory and conflicting to be relied upon as the sole means of making a positive diagnosis. Taken in connection, however, with the clinical picture, or viewed simply in the light of an additional method at our disposal to diagnose and combat disease, the study of the blood at once becomes of utmost importance, and it is, therefore, essential to take advantage of the knowledge which may be derived from this source. As evidence that this

work is absolutely up to date, the influence of the internal secretion of the ovaries and other ductless glands is discussed. In fact, this edition of Ashton's book is probably at the present time the most exhaustive and generally instructive of any text book on gynecology in the English language. It is excellently printed and bound, profusely and well illustrated. From all points of view it is a credit to the writer as well as to the publisher.

**Text-Book on the Pathogenic Bacteria and Protozoa.** For Students of Medicine and Physicians. By JOSEPH MCFARLAND, M.D., Professor of Pathology and Bacteriology in the Medico-Chirurgical College, Philadelphia. With 293 illustrations, many of them in colors. Seventh Edition, thoroughly revised. Price \$3.50 net. Philadelphia and London: W. B. Saunders Company, 1912.

Good wine needs no bush, and this saying is applicable to this last edition of Dr. McFarland's work upon the pathogenic bacteria and protozoa. When in 1896 the book was first published, the reviewer in one of the chief medical journals of the world remarked that there was so great a number of such works that he deemed there was no sufficient *raison d'être* for the one in question. He had probably forgotten that there is always room on the top either for men or books. That the author was justified, indeed showed his prescience in publishing this particular work, has been amply proven by the fact that it has gone through seven editions, and to use a sporting phrase, is still going strong. In 1896 it was more or less an elementary text book, but it kept pace with the wonderful increase of knowledge of the pathogenic bacteria, so that the second edition developed into a text book for students and physicians, and this, the last edition, is full and suited in all respects to the requirements of post graduate students. Moreover, from the literary standpoint the work is entirely satisfying. Dr. McFarland is the possessor of a terse and elegant style and diction which is free from that verbose redundancy which mars the writing of many medical scribes. He has that faculty of expressing his views in few words, yet clearly and to the point. As in former editions, the chapter dealing with tuberculosis is especially to be commended, and seems to follow the views of the British authorities rather than those of the German schools, that infection commonly takes place through the gastrointestinal tract from infected food, and that bovine and human tubercle bacilli are equally infectious for man. Although cerebrospinal meningitis is discussed at considerable length, that somewhat kindred disease, poliomyelitis, is not mentioned. Perhaps the author is of the opinion that the question as to the causation of infantile paralysis is still in rather a chaotic state. In the chapter on typhoid fever the differentiation of the typhoid and colon bacilli is discussed and attention is drawn to the ingenious method of isolating the typhoid and colon bacilli from drinking water suggested by Professor Starkey of Montreal. That part of the chapter, too, in which the bacilli resembling the typhoid bacilli, the paratyphoid and the paracolon bacilli, are considered is particularly to be noted. Pathogenic bacteria in this new edition are discussed from the most recent studies, but a novel feature is the introduction of the pathogenic protozoa into the scheme of the work. Thus the book has been expanded in the endeavor to fulfill all modern requirements as a sufficient and efficient text book for students of human medicine and pathology, by describing all the pathogenic microorganisms of importance in human medicine, whether they be bacteria or protozoa; by teaching the laboratory technic with reference to the needs of medical students and practitioners, by bringing each microorganism under consideration into a historic, geographic, biologic, and pathologic setting; by dwelling upon the anatomic and physiologic disturbances referable to the various microorganisms; by describing the lesions occasioned by these different organisms; and by explaining such methods of diagnosis and treatment as grow out of the knowledge of microbiology in general and of the microorganisms in particular. It only remains to be said that Dr. McFarland has succeeded in carrying out this scheme in a most satisfactory manner. The book is well printed and bound, and the illustrations, figures and charts serve to elucidate and emphasize the text in the way intended.

**Diseases of the Stomach, Intestines and Pancreas.** By ROBERT COLEMAN KEMP, M.D., Professor of Gastrointestinal Diseases, New York School of Clinical Medicine. With 388 illustrations, some in colors. Second Edition, revised and enlarged. Price, cloth, \$6.50 net; half morocco, \$8.00 net. Philadelphia and London: W. B. Saunders Company, 1912.

This, the second edition of Dr. Kemp's work on diseases of the stomach, intestines and pancreas, is a manifest improvement on the first edition. In addition to a thorough revision, several new subjects have been introduced, including chapters on colon bacillus infection and on diseases of the pancreas. The object of the book, according to the author, is to provide the general practitioner with a working knowledge of the diseases discussed, and in the main the aim has been achieved. If one wished to be hypercritical, perhaps, it might be urged that the book is somewhat too full and that a more brief and concise description of the diseases dealt with would be better suited to the needs of the busy general practitioner. On the other hand, the language is clear and the numerous illustrations are explanatory of the text in a high degree. Especially is that portion of the work devoted to surgical procedure excellent, and the accounts of the treatment of visceral displacements by mechanical methods worthy of much praise. In the first four chapters the anatomy of the stomach and intestines, the physiology of digestion, history of the patient and general methods of physical examination are minutely gone into. Part 2, comprising nineteen chapters, is devoted to diseases of the stomach. Part 3, consisting of fourteen chapters, treats of the diseases of the intestines. Part 4 has nine chapters, dealing with diseases of the pancreas. The chapter on infections by the bacillus coli is in the present state of opinion with regard to this form of infection timely and presents all the latest views on the subject. The paragraphs, however, regarding the paratyphoid infections are scarcely so full as the importance of the matter deserves. Due regard is paid to the part played by the internal secretions in the physiology of digestion generally and in the physiology of the pancreas in particular. Although Professor Kemp does not go so far as some authorities who assert that many cases of diabetes are due to insufficiency of the internal secretion of the pancreas, he, in referring to the use of pancreatic enzymes as an aid to diagnosis, states that the use of pancreatic extract might be of some aid to diagnosis, especially if improvement in the stools, with diminished fat excretion resulted therefrom. Of course this would suggest at once pancreatic deficiency. The second edition of Kemp's diseases of the stomach, intestines and pancreas may be recommended as a valuable text book for practitioners and as one of the best works written on those diseases. The book is excellent as regards printing and binding and the illustrations are in keeping with the general high character of the work.

**Surgery and Diseases of the Mouth and Jaw.** A Practical Treatise on the Surgery and Diseases of the Mouth and Allied Structures. By VILROY PAPIN BLAIR, A.M., M.D., Professor of Oral Surgery in the Washington University Dental School, and Associate in Surgery in the Washington University Medical School. With 384 illustrations. St. Louis: C. V. Mosby Company, 1912.

It will be found upon a studied reference to this volume that the surgery of the mouth and jaws is skillfully treated with a detail of technic which will make the work not only valuable as a text-book for dental and medical students, but a work of reference for the operator and teacher.

There are forty-four chapters, in which will be found a wealth of detail, and this is accompanied with numerous illustrations, which add much indeed to a comprehensive and perfect understanding of the subjects described. This work is, we think, sure of a prominent place in special surgical literature; the surgeon dentist especially will find for it frequent need and a place in his library.

**Muscle Spasm and Degenerations in Intrathoracic Inflammation.** Their Importance as Diagnostic Aids and Their Influence in Producing and Altering the well established Physical Signs, also a Consideration of their Part in the Causation of Changes in the Bony Thorax; and Light

Touch Palpation. The Possibility and Practicability of Delimiting Normal Organs and Diagnosticating Diseased Conditions within the Chest and Abdomen by Very Light Touch. By FRANCIS M. POTTINGER, A.M., M.D., LL.D., Medical Director of the Pottenger Sanatorium for Diseases of the Lung and Heart, Monrovia, Cal. Sixteen Illustrations. St. Louis: C. V. Mosby Company, 1912.

This book is pretty fully described on the title page as reproduced above. It will be found a comprehensive review or translation, with emendations, of Bauer's "Beiträge zur Tuberkulöse." It is interesting and will be found profitable reading for those interested in tuberculosis.

**An Essay on Hasheesh, Including Observations and Experiments.** By VICTOR ROBINSON. *Medical Review of Reviews*, New York, 1912.

An essay of this character inevitably invites comparison with a gem of English literature by one of the greatest masters of English who ever lived—"The Confessions of an Opium Eater," by De Quincey. However, De Quincey's masterpiece stands alone and perhaps is never likely to be surpassed or even equalled. A few years ago a work on hasheesh, containing a description of the personal experiences of the author in its use, was written by an American, Mr. Fitzhugh Ludlow, and with this work Mr. Robinson's essay may be fairly compared. Judged by this standard, Mr. Robinson does not suffer so far as diction and language are concerned. In writing his book the author seems to have caught somewhat of the spirit of the East, in the exuberant play of fancy and imagination and in the luxuriant imagery with which he clothes his words. In fact, the language is eminently in keeping with his subject. Moreover, his history of hasheesh is lucid and apparently accurate. It may not be out of place to point out that although habitual users of hasheesh, present and past, can be counted by the million, none of them seems to have been inspired in the same degree as the votaries of the concrete juice of the poppy. While Coleridge is said to have written that exquisite fragment, "Kubla Khan," when under the influence of opium, and while De Quincey wrote the greater part of his flawless essay when his brain was stimulated by the same drug, so far as is known, no really great literary work has been done while hasheesh has held sway. It would be interesting to know under what influence, if under that of any drug, Fitzgerald wrote his version of Omar Khayyam. There is one phase of the matter on which Mr. Robinson has not laid sufficient stress. He has shown in somewhat glowing words the voluptuously pleasurable effect of hasheesh, and has rather appeared to imply that it does not possess especially dangerous properties. True, its injurious effects on the human system are not so obviously apparent as those of opium in its various forms, but without doubt the continued use of hasheesh does bring about disastrous consequences. Mr. Robinson's experiments were elementary; they did not go beyond the danger point. Nevertheless, it would be almost criminal to convey the impression that hasheesh is an innocuous stiller of pain. He, likewise, appears to argue that hasheesh and drugs of a more or less kindred nature are employed for the sole purpose of allaying pain. As a matter of fact, this is only the reason for a comparatively small part of their use. The desire to forget for a time the stress and strain of existence are more responsible by far for the taking of opium and hasheesh than is pain.

Men of science are not agreed as to the correct explanation of the effect of hasheesh upon the brain. Perhaps the majority are of the opinion that it unbridles the restraint imposed by convention and artificial life upon the thoughts. Subconsciousness is aroused and the innermost thoughts of an individual become articulate and are given free rein. The most careful researches with regard to hasheesh have been conducted in India, its home. Some years ago Dr. O'Shaughnessy, a medical man in India, found that Indian hemp had a good effect in controlling the spasms of rabies. The great drawback to its use as a drug is that it is extremely difficult to procure a pure product.

Mr. Robinson's essay is interesting and in a less degree instructive, while his début as a writer of untrammelled English is promising.



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## ORIGINAL ARTICLES

### THE SIGNS OF OVERDOSAGE IN DIGITALIS ADMINISTRATION\*

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I have chosen this title because digitalis poisoning is almost invariably the result of overdosage in its administration for therapeutic purposes. I have thought the subject a timely one because of the extensive employment of drugs of the digitalis group, and because, since the recent introduction of clinical instruments of precision for the study of the circulation, we have learned that some of the symptoms formerly attributed to the disease of the heart are really manifestations of the toxic action of the digitalis given as a remedy. This is apparent from Bailey's recent discovery in Bellevue Hospital, that of ninety patients taking digitalis, about 25 per cent. showed one or more of the toxic effects of the drug; and from the fact that poisoning to some degree is a very frequent observation of those who study sphygmocardiographic tracings. Of course, no line can be drawn between the full physiologic and the beginning toxic effects, but the latter indicate immediate stoppage or reduction of the drug.

As a rule the undesirable effects are obviously due to the drug. But there are a number of cases in which we are unable to say with certainty that digitalis is the cause of this or that condition of the heart, until we note the disappearance of the manifestation shortly after the digitalis is stopped, and its reappearance under further administration of the drug. The possibility of persistence of effect must be kept in mind, for, as ascertained by Hatcher in cats, the drug action may continue in some cases for as much as

\*Read at the Annual Meeting of the New York State Medical Association at Albany, April 16, 1912.

three weeks after a single intravenous dose. I have observed persistence of partial heart block for three and one half weeks after the stoppage of digitalis, and of complete block for one week. Cushny reports a case of auricular fibrillation in which through the influence of digitalis "inhibition had gained a permanent control over the heart," so that the effect persisted indefinitely after the drug was stopped, or was perpetuated by an occasional dose. From my experience I should think that such an effect in auricular fibrillation is not uncommon.

The signs will be taken up seriatim according to the following table:

## MANIFESTATIONS OF OVERDOSAGE OF DIGITALIS

### I. SUBJECTIVE MANIFESTATIONS.

- a. Loss of appetite, nausea, vomiting, diarrhea.
- b. Oppression about heart, palpitation, tachycardia, consciousness of premature or skipped beats.
- c. Headache.

### II. OBJECTIVE MANIFESTATIONS.

#### a. *Effect on Sinus Node.*

1. Excessive slowing.
2. Sinus arrhythmia { exaggerated respiratory.  
nonrespiratory.

- #### b. *Effect on a-v bundle* { Prolonged auriculo-ventricular interval. Partial or complete block (with or without bradycardia).

#### c. *Effect on muscle—*

- |                   |   |   |
|-------------------|---|---|
| Over-excitability | { | <ol style="list-style-type: none"> <li>1. Premature beats (extrasystoles).</li> <li>2. Paroxysmal tachycardia.</li> <li>3. Nodal and retrograde rhythms.</li> <li>4. Auricular fibrillation.</li> <li>5. Ventricular fibrillation.</li> </ol> |
|-------------------|---|---|

#### d. *Combined effects on a-v bundle and on muscle.*

- |  |   |   |
|--|---|---|
| <ol style="list-style-type: none"> <li>1. In auricular fibrillation</li> </ol> | { | <ol style="list-style-type: none"> <li>1. Complete heart block, but little or no bradycardia.</li> <li>2. Coupled rhythm.</li> <li>3. Phasic arrhythmia.</li> </ol> |
|--|---|---|

2. In normal rhythm—complete block without bradycardia (owing to increased excitability).

#### e. *Constriction of coronary arteries—a possible influence—Pulsus alternans.*

## I. THE SUBJECTIVE MANIFESTATIONS

The *anorexia*, *nausea*, and *vomiting* are familiar to every one. They are due in large measure to an increased sensitiveness of the vomiting center. They occur no matter how the drug is administered, whether by mouth, by rectum, hypodermatically or intravenously. But since an irritable vomiting center makes the stomach exceedingly sensitive to local irritants, the doses by mouth are more prone to produce nausea than doses administered in other ways.

*Diarrhea* is much less frequent. It may be attributed either to the local irritation by unabsorbed drug or to vagus stimulation, the vagi being the motor nerves of the intestines.

The subjective sensations of *discomfort about the heart*, of *premature beats and of skipped beats*, the *palpitation* and the *tachycardia* need no elucidation. The *headache* is not very common, but may be very persistent when it occurs.

## II. OBJECTIVE MANIFESTATIONS

In appreciating these, it makes a difference whether one uses tracings, electrocardiographic and sphygmocardiographic; or the ear and the finger without instruments of precision. In the latter case it is imperative that the beat should be estimated with the stethoscope or ear over the *heart*, as the pulse at the wrist may give an entirely erroneous idea of the action of the ventricle. (See three charts of bigeminal pulse.) Some of the effects require tracings for their discovery, but fortunately most of the more common ones may be readily detected without tracings.

Digitalis may affect the heart in four distinct structures—viz., the sinus node, the auriculo-ventricular bundle, the cardiac muscle, and the coronary arteries.

A. *The Sinus Node*.—This is the normal controller of the rate of the heart. Through it the rate may be changed, but the beats of the ventricle follow those of the auricle in the normal manner. That is, the individual beats of the heart as a whole are normal, whether the rhythm is regular or irregular, or the rate fast or slow. A beat having its origin elsewhere than at the sinus node is an abnormal beat. Through stimulation of the vagus system, digitalis tends to inhibit the activity of this sinus node. From this there may be two results—viz., (1) *slowing* of the rate, and (2) alternation of successive short periods of slowing and acceleration, the so-called *sinus arrhythmia*. (1) If excessive, slowing is obviously harmful. It must be borne in mind that digitalis frequently fails to slow the heart, as when the rate is already normal or slow, in some cases of old age, and in the rapid pulse of tuberculosis, paroxysmal tachy-

cardia, and some infectious fevers. Hence, if slowing is taken as the criterion of the drug's efficiency, and in consequence of its absence the dose of the drug is increased, serious poisoning may result. (2) Sinus arrhythmia is physiological in forced inspiration and expiration, the phases corresponding with the phases of respiration, and the effect of the drug may be merely to exaggerate these respiratory variations, so that they are present without forced breathing. But the drug may also produce similar variations independently of respiration, and this is believed to be a toxic effect.

*B. The Auriculo Ventricular Bundle.*—The function of this bundle is to conduct impulses from the auricle to the ventricle, so that normally the ventricular beat follows that of the auricle in practically one fifth of a second. Through vagus stimulation, and perhaps to some extent by direct action on the structures of the bundle, the so-called "junctional tissues," digitalis may have the effect of retarding or entirely preventing conduction.

Slightly retarded conduction, shown by a prolongation of the auriculo-ventricular interval, e.g., to three tenths or two fifths of a second, is not uncommon from digitalis. (Fig. 9.) It is an effect that can be ascertained only by tracings, the a-c interval of the jugular tracing being prolonged beyond one fifth of a second; but it is a toxic manifestation and calls for stoppage of the drug. More rarely seen from digitalis, but much more serious, is a degree of interference with conduction which results in occasional or frequent failure of the ventricle to beat in response to the auricle, i.e., a state of *partial heart block*. In this condition either (1) the ventricle intermits at regular intervals, i.e., skips every 10th, 7th, 3d, etc., beat, no sound being heard with the stethoscope, and an independent auricular beat showing in the tracings during the ventricular intermission; or (2) the ventricle beats only in response to every second or third auricular beat, i.e., in 2:1 or 3:1 rhythm, the pulse being slowed and regular. (Fig. 3.)

Still less frequent from digitalis is *complete heart block*, in which the ventricle receives no adequate stimulus from the auricle, and consequently beats at its own intrinsic rate with entire disregard of the beat of the auricle. In the complete block of disease the rate of the ventricle is in the neighborhood of thirty, the normal intrinsic rate. But in the complete block from digitalis, owing to the increase in irritability, of which we shall speak presently, the rate of the ventricle may be more rapid, is not infrequently about double the normal intrinsic rate, and may even exceed that of the auricle (Hewlett and Barringer). It may be impossible to detect the block from digitalis without tracings, but a *sudden* change in the ventricu-

lar rate should lead one to suspect block. (Figs. 4 and 5.) In auricular fibrillation a complete block is shown by slowing below the normal with regularity in the action of the ventricle. (Fig. 13.)

When a partial block is already established by disease, digitalis is very prone to increase its severity or to change it to complete block. A number of deaths have been caused in this way, especially from the intravenous use of strophanthin. In one of Dr. Norrie's cases of permanently complete heart block (Fig. 1), digitalis had the effect of bringing on short spells in which the rate of the ventricle doubled. Among my tracings of this case, there is one in which the ventricular rate shows a sudden jump from twenty six to fifty four, a drop of the auricular rate from sixty two to fifty four, and a change of the rhythm to "reversed" or retrograde, i.e., the auricular systole followed that of the ventricular instead of preceding it, both having the same rate. (Fig. 2.) Following each such paroxysm there was a long pause without a beat before the ventricle resumed its intrinsic rhythm, and during the pause the patient had a passing attack of faintness or light-headedness, though lying flat in bed. Such a pause, sometimes, as in this case, following the doubling of a slow ventricular rate, is prone to occur in complete heart block from any cause, and may be accompanied by feelings of faintness, loss of consciousness, or an epileptiform convulsion, the typical Stokes-Adams attack. These effects are due to a momentary anemia of the medullary centers, the result of the ventricular stoppage, and are more serious if the patient is in the upright position.

C. *The Cardiac Muscle*.—Of the different effects of digitalis upon the cardiac muscle, excitability in excess is the one for which we must be most on the lookout. One of the earliest indications of over-excitability is the *premature, or interpolated, or abortive beat*, the so-called extrasystole. This may arise in the auricle (auricular extrasystole), the ventricle also giving a premature beat in response to the auricular stimulus. But much more commonly it has its origin in the ventricle (ventricular extrasystole), the ventricle alone giving a premature beat while the auricular rhythm is not affected. An extrasystole may appear at regular intervals or irregularly. It may occur only occasionally, or frequently, even to the extent of there being more than one extrasystole to each normal beat. It may sometimes be induced in susceptible hearts by holding the breath. It may show in the radial pulse or it may not, but it makes an irregularity of the ventricle, not an intermittence. It is one of the most commonly observed of the toxic manifestation of the drug. (See Figs. 6, 7, 8, 9, 10.)

Over-excitability may also show in short paroxysms of tachy-



cardia (Fig. 11), or in auricular fibrillation (Fig. 15). The tachycardial beats may arise in the auricle, in the ventricle or at Tawara's node. If they have their origin in the auricle, the tachycardia may change suddenly into auricular fibrillation. If they originate at Tawara's node, there is true *nodal rhythm*, and the auricle and ventricle receive their stimulus at the same time, and consequently beat simultaneously. If the tachycardial beats originate in the ventricle, there may be a *reversed or retrograde rhythm*, the ventricle imposing its rhythm upon the excitable auricle.

In *Auricular Fibrillation* the auricular muscle is in a state of such excitability that its muscle fibers appear to quiver or fibrillate instead of contracting coördinately to make an auricular beat. These fibrillations occur at the rate of several hundred per minute, and their effect upon the ventricle is to make it beat in a rapid, irregular and disorderly manner. In a pulse tracing of this condition unmodified by drugs, (a) no two sections are alike, the radial pulse being irregular and disorderly, (b) the height of the pulse wave has no definite relation to the length of the preceding pause, and (c) the jugular tracing shows absence of the normal auricular wave and in most instances numerous small fibrillation waves. (Fig. 12.)

It is probable that at times the ventricle passes into a state of *fibrillation*, which almost invariably means immediate death. In mammal experiments ventricular fibrillation is the usual terminal effect of digitalis poisoning (Cushny). Occasionally a failure of the two ventricles to beat together, i.e., hemisystole, has been observed to precede the final stopping of the heart (Bailey, Lieb).

D. *Combined Effects*.—In cases with auricular fibrillation already established from disease, the effects on irritability and conduction are strikingly to be observed after digitalis. The therapeutic effect of the drug in auricular fibrillation is not, so far as we know, to overcome the fibrillation, but essentially to impair conductivity, that is, to make a particular heart block. It thus checks the passage of the frequent small and irregular auricular impulses, which in this condition serve only to nag the ventricle and make its action disorderly. The effect is partly due to vagus stimulation, and pressure on the vagus in the neck will sometimes momentarily produce a similar result. It is possibly, also, partly due to a direct action of the digitalis on the junctional tissues (Cushny).

However, in auricular fibrillation, if the digitalis action on conduction is excessive, the heart may go on to complete block with regularity of the ventricular beats. (Figs. 13 and 14.) Or, from over-excitability, it may show a condition in which each beat that occurs in response to an auricular stimulus is followed quickly by

another beat which originates in the ventricle. Thus the beats appear in pairs or couples and make "*coupled rhythm*." The second beat of the pair is of the nature of a premature beat, and may or may not be palpable at the wrist. (Figs. 11 and 17.) The distance between the members of a couple is fairly constant, but that between the couples may vary considerably. What is probably an early stage of coupled rhythm is an alternation of single beats with coupled beats. A serious stage of it is present when the distance between the couples is short so that the ventricle beats very rapidly.

Another digitalis effect in auricular fibrillation is "*phasic arrhythmia*" (Fig. 18), which corresponds in its general character with sinus arrhythmia, but, so far as known, has its origin not at the sinus but in the ventricle. Cohn has recently discovered that in some cases vagus fibers pass directly to the ventricle; and it may be that phasic arrhythmia occurs only in such cases, and is a vagus effect.

E. *The constriction of the coronary arteries* is a real digitalis effect, as shown by perfusion experiments. In the coronaries of young rabbits the addition to the perfusion fluid of one part in 20,000 reduced the outflow from 8 to 3 c.c. in a given time (Dixon). But whether or not digitalis can have any marked influence upon the caliber of the coronaries except in extreme poisoning has not been fully determined. The phenomenon of *pulsus alternans*, however, in which weaker and stronger beats regularly alternate, suggests a coronary narrowing; for *pulsus alternans* not due to digitalis occurs usually in conditions in which the coronary circulation is inadequate, viz., in myocarditis with coronary sclerosis, in the hypertrophy of nephritic hearts, and in paroxysmal tachycardia. (a) In coronary sclerosis the coronary blood flow is retarded. (b) In hypertrophy a time may come when the coronary flow cannot meet the needs of the large mass of muscle. (c) In a very rapid tachycardia the diastolic pause is much shortened, and as the coronary circulation goes on essentially during diastole, obviously the cardiac blood supply must be seriously interfered with. *Pulsus alternans* is, therefore, we believe, a coronary effect; and when it results from digitalis is a decidedly toxic one. (Fig. 19.)

These, then, are the chief manifestations of poisoning from the medicinal use of digitalis. In laboratory animals sudden death may occur from the intravenous administration of a large dose. We have heard of one such death from digitalis in a human being, and of several such following the intravenous use of the digitalis ally, strophanthin, death resulting in from three minutes to about an hour. Such sudden death is apparently the result of either complete heart block in an already weakened heart, or of ventricular fibrilla-

tion. It is very prone to occur if digitalis has been administered just previously by mouth.

The margin of safety with digitalis is fortunately a large one, so that there is no undue danger in the use of even large doses by mouth or hypodermatically if the administration is stopped when one of the following conditions arises, viz.:

1. *Nausea is marked.*
2. *The radial pulse goes below 60.* The pulse may become progressively slower for a few days after the drug is stopped, hence the necessity for ceasing its administration before the slowing has become extreme.
3. *A rapid ventricle with rate unaffected by digitalis for several days suddenly becomes slower* (heart block).
4. *A regular ventricular rhythm changes to irregular*, as from premature beats or the development of auricular fibrillation; or *becomes intermittent*, as from partial heart block.
5. *Paroxysmal tachycardia occurs.*
6. *The absolutely irregular rhythm of auricular fibrillation becomes slow and regular* (complete heart block), or *shows coupled rhythm or phasic arrhythmia.*

A considerable risk may be avoided by refraining from the use of digitalis (*a*) when the ventricle is intermitting, (*b*) when there are premature beats, or (*c*) when there is bradycardia.

Fourteen of the tracings herewith were taken from patients on the services of Dr. Van Horne Norrie and Dr. Austin W. Hollis, at St. Luke's Hospital, through whose kindness we are permitted to publish them.

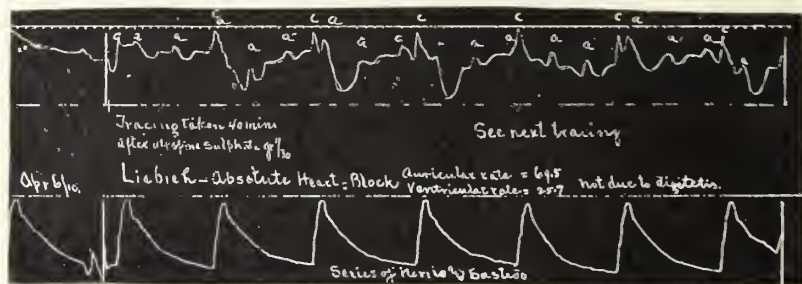


FIG. 1

FIGS. 1 AND 2. *Reversed rhythm.*—This was a case of absolute heart block with constant ventricular rate of 22 to 30. The rate was unaffected by drugs except as shown in tracing 2, taken after powdered digitalis gr. ii four times a day for eight days. The ventricular wave *c* precedes the auricular wave *a* by a more or less regular interval.

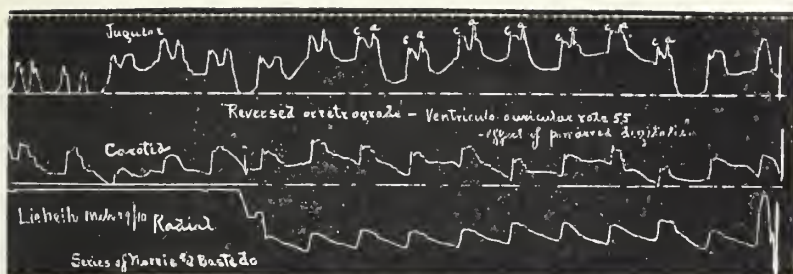


FIG. 2

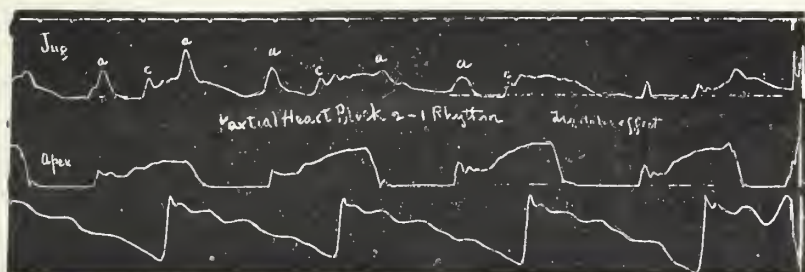


FIG. 3

FIG. 3. Partial heart block.—2:1 rhythm, developing, after digitalis (amount unknown), in a heart with normal rhythm.

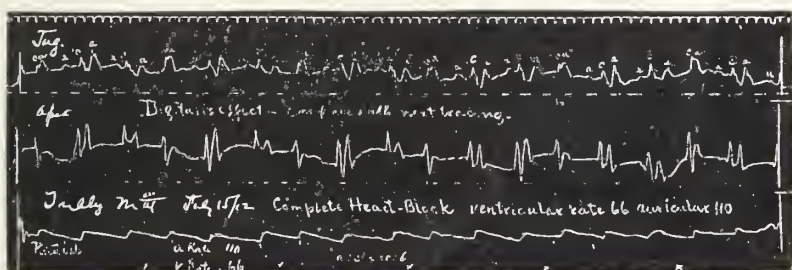


FIG. 4

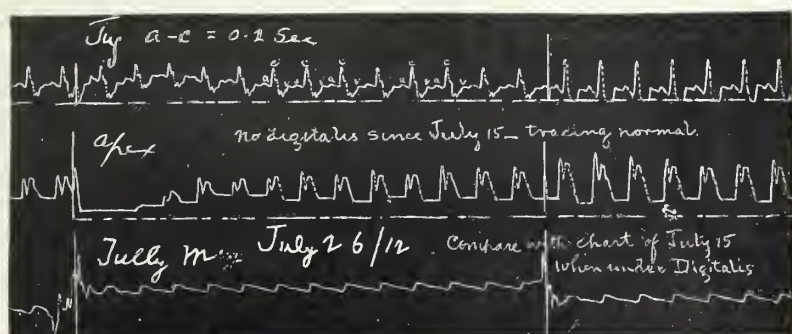


FIG. 5

FIGS. 4 AND 5. Complete heart block.—Developing after digipuratum gr. iss t.i.d. for nine days. Tracing 5 shows return to normal rhythm after the digitalis effect had worn off.



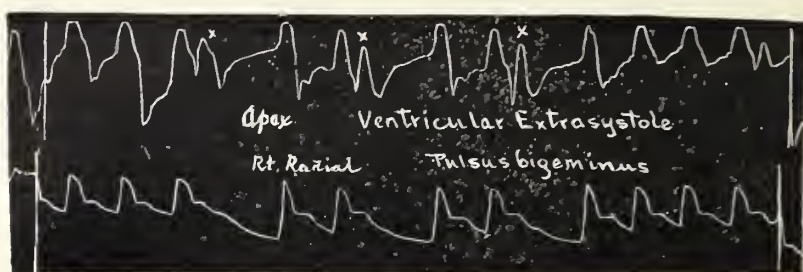


FIG. 6

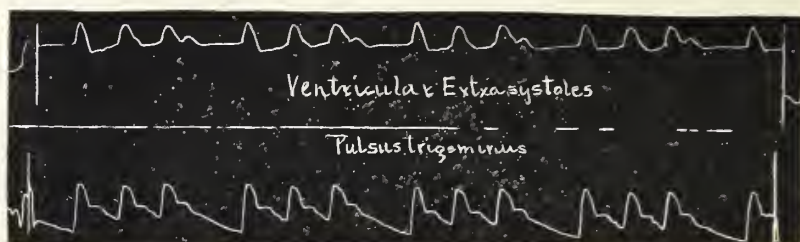


FIG. 7

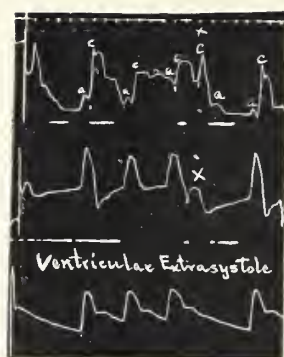


FIG. 8

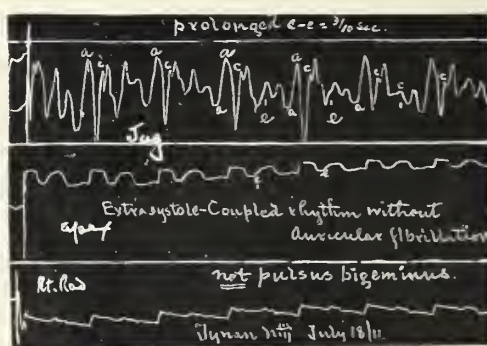


FIG. 9

FIGS. 6, 7 AND 8. *Ventricular extrasystoles*.—Case of moderate dilatation of the heart with normal rhythm. When extrasystoles developed, patient was taking twenty minims of tincture of nux vomica and ten minims of tincture of digitalis t.i.d. As the amount of strychnine (gr.  $\frac{1}{50}$ ) was not large, and extrasystoles have not been recorded from strychnine, it is assumed that digitalis was the responsible agent.

FIG. 9. *Prolonged a-c interval (beginning heart block) and extrasystoles*.—Case of mitral insufficiency, normal rhythm. Before digitalis the rate was regular and the a-c interval the normal 0.2 sec. He received digitalis for one day, infusion of digitalis 5 ii q. 4 h. for six days, then powdered digitalis gr. i q. 4 h. for three days. The following day the tracing was taken. Seven days later the heart had returned to normal.



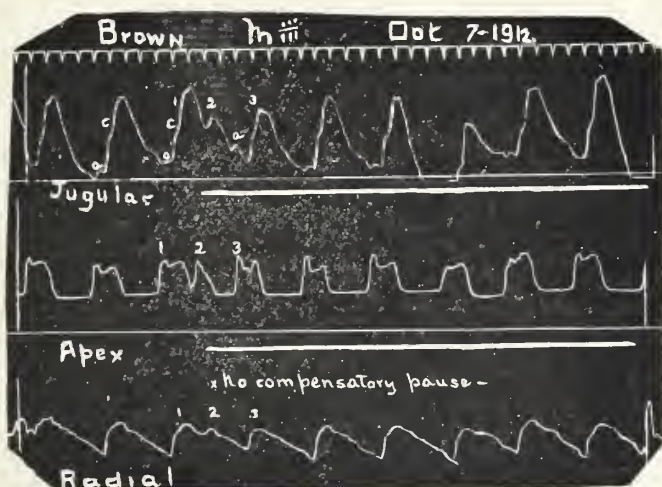


FIG. 10

FIG. 10. *Auricular extrasystole*.—Case of aortic stenosis. Digitalis in unknown quantities taken for some time, then digipuratum, gr. iss t.i.d. for four days. Two days later, on admission, the extrasystoles were numerous, and they disappeared after three or four days without any drug.

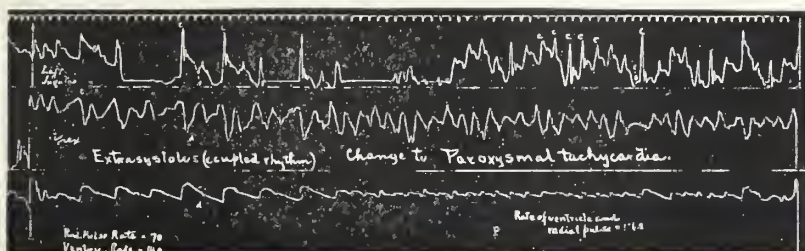


FIG. 11

FIG. 11. *Extrasystoles and paroxysmal tachycardia*.—Case with auricular fibrillation. Digitalis gr. iss for four days resulted in alternating periods of halving of the pulse rate (extrasystoles), and very rapid regular pulse (paroxysmal tachycardia).

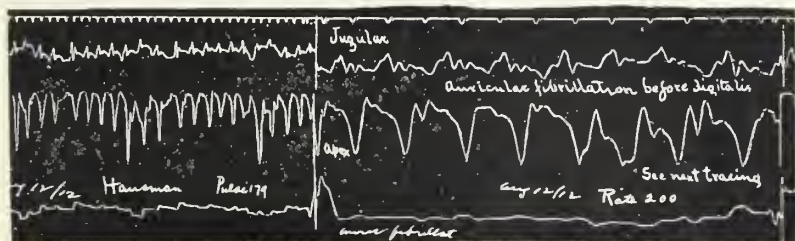


FIG. 12

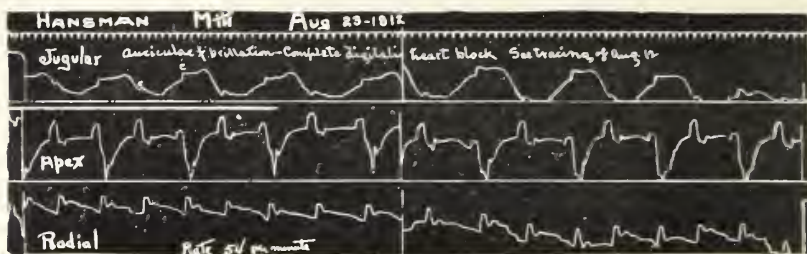


FIG. 13

FIGS. 12 AND 13. Complete heart block developing in a case with auricular fibrillation. On admission (tracing 12) the ventricle was very irregular rate 146 to 160, with a countable radial pulse of 80 to 84. Infusion of digitalis 5 iv t.i.d. was given for eleven days, then stopped. At this time the pulse was nearly regular, rate about 72. Four days later tracing 13 was taken, the pulse being quite regular, rate 54. Three days later, i.e., one week after the stoppage of the drug, the complete block was still present, the ventricular rate remaining between 50 and 60.

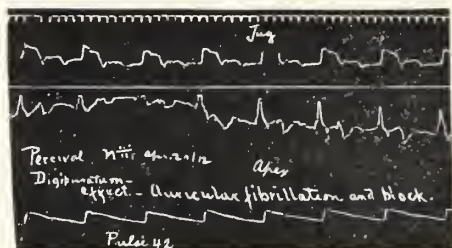


FIG. 14

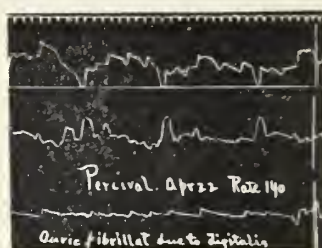


FIG. 15

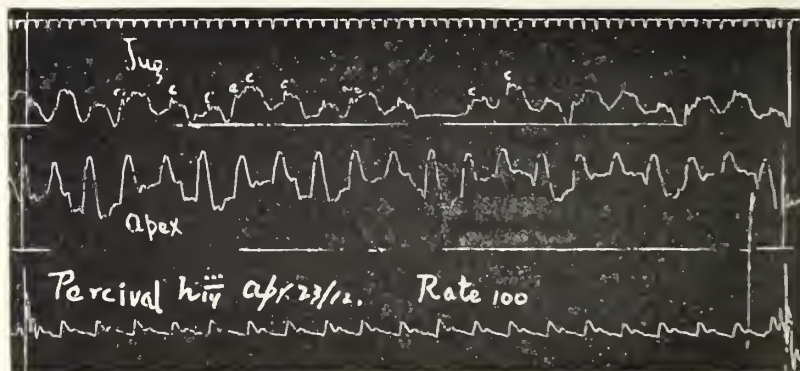


FIG. 16

FIGS. 14, 15 AND 16. Auricular fibrillation and complete heart block developing in a case with normal rhythm. Case of cirrhosis of liver, weak heart with normal rhythm. Digipuratum gr. iss t.i.d. was given from April 17 to 20, when tracing 14 showed auricular fibrillation and complete heart block, rate 42. The drug was stopped and two days later tracing 15 showed auricular fibrillation alone, rate about 135. Tracing 16, taken the next day, showed return to normal rhythm, rate 100.

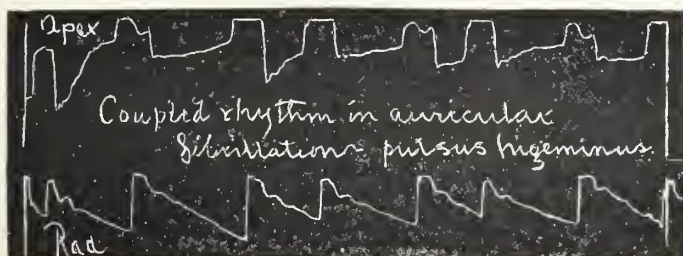


FIG. 17

FIG. 17. Coupled rhythm developing in a case of auricular fibrillation. This is an exceedingly common effect. It resulted after five days of powdered digitalis gr. ii t.i.d.

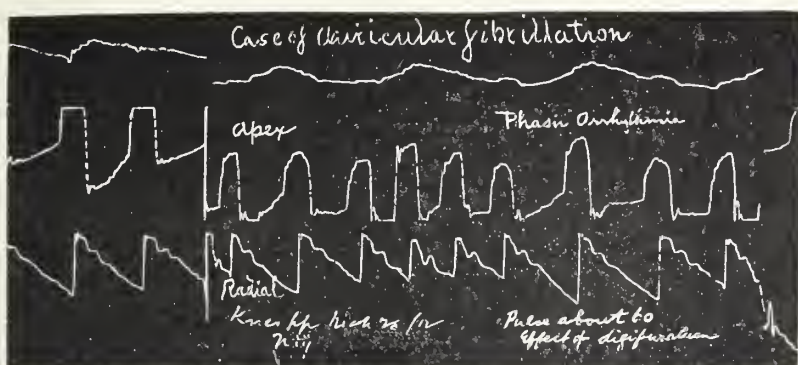


FIG. 18

FIG. 18. Phasic arrhythmia developing in a case of auricular fibrillation. This followed digalen m. x. q. 4 h. for one day, and digipuratum gr. iss t.i.d. for two days.

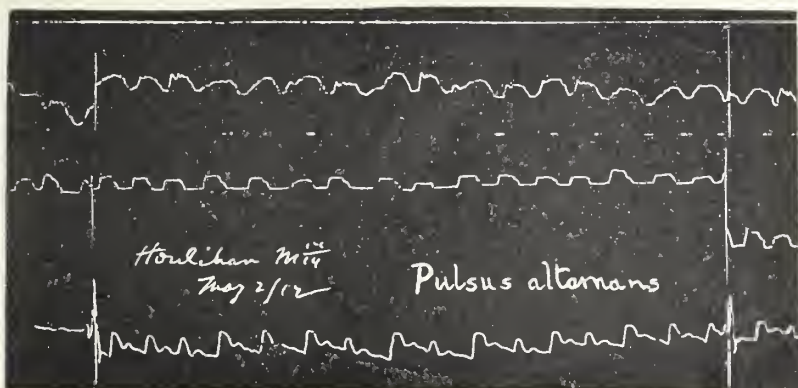


FIG. 19

FIG. 19. Pulsus alternans developing in a case of mitral and aortic insufficiency with auricular fibrillation. Rate 150 to 160. The tracing was taken after two days of digipuratum gr. iss t.i.d. (The smaller beats may be extrasystolic in type, but for want of an electrocardiogram we are unable to say whether or not they have a preventricular origin.)

# Digitalis Effects.

Respiration

Pulse.

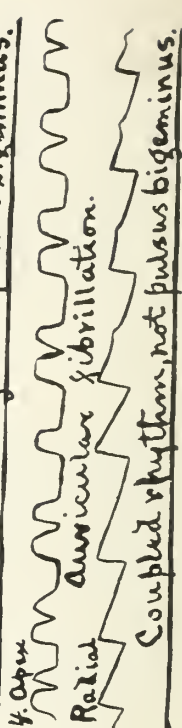
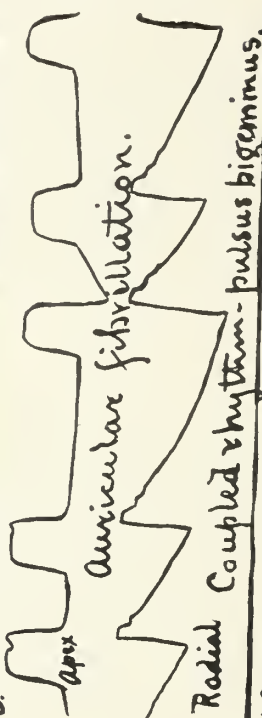
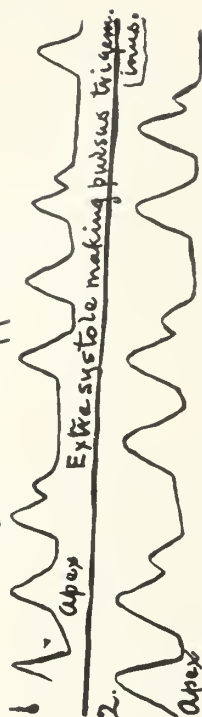
Sinus Arrhythmia. One cycle = 7 beats.

Pulsus alternans.

Heart Block - partial.

Heart Block - partial.

# 1. Digitalis Effects.



Coupled rhythm, not pulsus bigeminus.



"FUNCTIONAL AND ORGANIC DISEASES OF THE  
ALIMENTARY TRACT. SOME POINTS IN  
THEIR DIAGNOSIS AND TREATMENT"

BY JOHN DUDLEY DUNHAM, A.B., M.D.

*Member American Gastro-enterological Association, Columbus, Ohio*

The title of this paper perhaps needs a word of explanation:

In the use of the term "functional disturbances" of the stomach and alimentary tract, I wish to include cases in which gastric symptoms arise as a result of diseases in quite remote organs.

A woman of thirty-two years who consulted me quite recently for "liver and stomach trouble" illustrates this latter class of cases. For six months she had a gradual loss of weight, frequent attacks of vertigo, accompanied by nausea and a metallic cough with no expectoration. She naturally ascribed the difficulty to stagnant liver and disordered stomach. My first examination was made with the fluoroscopic screen, and revealed a pulsating tumor at the site of the arch of the aorta. This woman, who had been treated with cholagogues and stomachics, made a very marked improvement by rest in bed, hot packs, mercury, and potassium iodide.

Professor Cabot says that 80 per cent of the patients who consult a physician for stomach trouble are really suffering from neurasthenia or disease in some other organ. My own observation over a period of twelve years, devoted exclusively to internal medicine, fully bears out the statement of the above mentioned famous clinician.

The separation of organic diseases of the alimentary tract from those functional in their origin is so frequently required that a consideration of some of the more definite points should be of interest. Quite often patients are found under observation and treatment for some considerable periods of time for such a disease as cancer of the stomach, when in reality there is present a profound neurasthenia with sitiophobia or fear of food, with a resulting emaciation. A case of this sort was seen in consultation at Marion, Ohio, in the early part of 1907.

CASE 2, 3-5-07.—Female 59 years old. Father died of cancer; mother died of female trouble; has lived on a farm all her life until one year ago. She has lost twenty five pounds in the past year, most of which has been in the last six months. Has had more or less cramping in epigastrium for twenty years, which has become more severe recently.

Emotional disturbances have always resulted in indigestion. She has a great fear that any sort of food which she may take will



cause more distress. For two weeks she has vomited all food, which consisted entirely of malted milk. No hematemesis or melena; no headache. The pain is described as "awfullest distress a human could bear." There has been no belching.

The examination shows an emaciated woman with dry skin, which is brownish in color. Heart and lungs normal. A tumor, which proves to be the pulsating abdominal aorta, is discovered in the scaphoid abdomen. The glands in the inguinal region are readily palpable. The urine is normal and the hemoglobin is 95 per cent. After an Ewald test breakfast the hydrochloric acidity was found to be 20 and the total acidity 36. Occult blood, lactic acid and food from previous meals are absent.

A diagnosis of neurasthenia gastrica was made. The patient was taken from what had been arranged as her death chamber, suitably darkened and free from drafts, to a well lighted ventilated room. She was given food every two hours—meat, eggs, cream toast, butter in large quantities, and gradually merging into a liberal general diet. Not the least important element in her treatment was the assurance that her trouble was not fatal, but that with proper treatment she would regain her normal health and strength.

When I saw her first, her weight was eighty-five pounds, and in March, 1909, two years later, she weighed one hundred and eleven pounds. At present she is in excellent health, and weighs one hundred and twenty five pounds. While still neurasthenic, her nutrition is as it should be, and she has lost her cachectic appearance.

This case illustrates the value of careful analyses. Had the attending physician discovered the abundance of hydrochloric acidity in the stomach contents and the hemoglobin percentage of 95, he would have hesitated to pronounce the disease cancer.

One point has been very helpful to me in the differentiation, viz., the character of the abdominal pain. Dr. Maylard, of Glasgow, has written an interesting and instructive book of 304 pages upon abdominal pain. To my mind, there is no more important matter in this volume than the question of the effect of pressure upon pain in the upper abdomen. Gentle pressure of the hand over the site of the abdominal pain will almost constantly cause its disappearance in patients suffering from neurasthenia. The acuteness of the pain will as constantly increase when caused by cancer, ulcer of the stomach, or disease of the gall bladder or ducts.

In the case just cited the pain entirely disappeared by pressure of the palm of the hand.

Many errors in the diagnosis of cancer of the stomach are made, because proper consideration is not given the history of the difficulty.

Patients who are of the mild hysteroneurasthenic type will often develop symptoms which will deceive the very elect.

A patient whom I saw four years ago is an example.

CASE 3, 12-17-08.—A Jewess 35 years old. Her father died of dropsy at 45; mother living has had Bright's disease. There is one sister living and well; one sister died recently of cancer of the stomach. She has had no infectious diseases; is constipated and there has been pain in the lumbar region for several years. The present trouble began nine weeks ago, when she noticed a long narrow tumor in the left upper quadrant of the abdomen. Since then she has lost her appetite and ten pounds weight.

An examination showed a ribbon like tumor arising three inches to the left of the median line about one inch above the umbilicus, as the only departure from normal. There is no tenderness on pressure over the abdomen. The tumor moves with respiration and disappears upon inflation of the stomach with CO<sub>2</sub>. The stomach contents showed an absence of hydrochloric acid, but no evidence of retention of food six hours after a meal. The hemoglobin was 75 per cent. The urine normal.

A tentative diagnosis of tuberculous disease, probably of the gastrohepatic omentum, was made and forced feeding advised. This patient was very certain she was afflicted with cancer, hence consulted an eminent internist of world wide reputation, who made a diagnosis of cancer in the lesser curvature of the stomach.

Another diagnostician stated that she had neurasthenia gravis. Fortunately for the patient, recovery resulted in spite of the variety of expressed opinions. No abdominal section was allowed, the patient is hale and hearty, while the tumor has disappeared.

The diagnosis must therefore remain in doubt.

After many sad diagnostic errors I hesitate considerably before pronouncing cancer of the alimentary tract in a patient who has suffered for years from neurasthenia with prominent digestive symptoms.

We should bear in mind the two typical histories upon which a diagnosis of cancer of the stomach may be safely predicated. First. An adult past 30 years of age who has enjoyed good health experiences uncomfortable sensations after meals, impairment of appetite, more or less disturbance of sleep, and loss of strength. Although slight at first, these symptoms persist and remain obstinate to all methods of treatment. In the course of time they become more and more aggravated.

Pains appear, which are always very annoying and sometimes show exacerbation of a very acute and intense form. While at first

there is only belching and a mouthful of food is occasionally ejected, after a while vomiting appears and deprives the patient of the little nourishment taken.

Second. A somewhat large number of cases appear after a history of gastric ulcer. In this group the patients have complained for two or more years of discomfort and pains from two to six hours after meals with belching, pyrosis, and bloating. In the later stages at the period, when cancerous changes have begun upon the scar of the old pyloric ulcer, other symptoms appear. The increased hydrochloric acid which has been found in the contents may be decreased and marked retention of food is observed. When the stomach is washed in the morning, yeasty chyme is secured. Emaciation then appears with some hematemesis. Tumor develops rather late in these cases. Extreme cases of malnutrition following a mild melancholia may be confused with cancer of the stomach in which a tumor exists.

Vascular crises and the crises of syphilis are quite often called functional disturbances of the stomach, intestines, or neuralgia of the stomach.

Careful investigations, particularly in the determination of blood pressure, have reduced the number of cases in which severe abdominal pains have been ascribed to functional nervous disturbances.

We know that severe pain in the right upper quadrant almost always signifies disease of the gall bladder or ducts. Therefore, neuralgia of the stomach has been lost as a diagnosis to cover faulty observations.

Vascular crises and the crises of preataxic tabes are not so often recognized. It is quite possible to have acute exacerbations of abdominal colic as a result of high pressure in the cardiovascular system. The attacks often stimulate gallstone colic or diffuse peritonitis.

Every patient with severe abdominal pain should be subjected to some examination to determine the degree of blood pressure and for the early signs of locomotor ataxia. The presence in a young person of a pressure from 180 to 200 m.m. of mercury together with acute abdominal pain should arouse one's suspicions.

Before operative means are applied such a patient should be given nitroglycerine or sodium nitrite in large and frequent doses. If due to hypertonicity of the arteries, the pain will be relieved.

In cases of apparent appendicitis or gallstones with atypical symptoms, the physician should hesitate to advise operative interference in the presence of tube casts and high pressure. Objection is often raised to ascribing any importance to blood pressure findings because of the variability of results in the use of apparatus and

the possibility that the hypertension is only a localized one. However, any physician may easily learn to estimate the pressure very accurately by palpating accessible arteries in various parts of the body.

Palpation of the femoral artery furnishes the most reliable information from which to make deductions in these cases of arteriosclerotic colic. A concrete instance may make more definite this idea.

CASE 4.—A man of 31 years, bartender, married, whose family history is negative, was referred to me May 10, 1910 by his physician for a corroboration before operation of his diagnosis of gallstone colic. The patient was strong until eight years ago. He had never used alcohol excessively. Six years ago he became infected with syphilis. One year later he began to have attacks of mildly acute abdominal pain. An appendectomy was performed, and a slightly inflamed appendix was found, but his abdominal pain did not cease. Three years ago he had typhoid fever with a complication of pneumonia. For six months he has suffered intermittently with severe abdominal colic. Belching and a sensation of a lump under the upper third of the sternum are experienced during the attacks. Morphine and other analgesics give very little relief and latterly have had no effect. During his last attack his attending physician administered morphine sulphate hypodermically in one and one half grain doses without effect. These attacks continue from five to twelve hours.

Examination following an attack the previous night showed an hypertrophied heart, the apex displaced one inch to the left of its normal position, cardiac dullness increased to the right. At the second right interspace the second sound is accentuated, and the sounds here are irregular. From the second to the fourth ribs on the right side a thrill is felt. Pain is elicited on pressure at the end of the sternum.

There is no increase of pain on pressure under the right costal margin, nor is the pain increased at this point at the height of inspiration. The inguinal lymphatics are enlarged. Palpation over the femoral artery shows a high tension estimated at 210 m.m. The instrument of Faught shows a pressure of 235 m.m.

After an Ewald test meal the contents of the stomach show an hydrochloric acidity of 40 and a total acidity of 60, and no occult blood. The stomach on inflation with air is normally situated with no dilatation. A diagnosis of aortitis, arteriosclerosis, and angina abdominis from high pressure was made.

Trinitrin relieved his subsequent attacks, while mercurial inunc-

tions and potassium iodide were given for many weeks. As a result he suffered only one mild attack during the last year.

Recurrent attacks of severe abdominal pain in a person with lost patellar reflexes and pupils with slow reaction to light should be studied carefully before the physician makes a diagnosis of gallstones.

CASE 5.—Some years ago I saw a man of 45 years brought into a hospital suffering apparently from a recurrent attack of cholelithiasis. He was in a collapse, and after some slight preparation and stimulation an operation was performed. Nothing abnormal could be detected after long search in the abdomen, whereupon the abdomen was closed. This patient died within forty-eight hours from syphilitic endarteritis.

Actual neuroses of the stomach do, however, occur. Before deciding upon such a diagnosis one should be painstaking in the elimination of possible organic disease.

Duodenal ulcer is very often overlooked, and patients are branded with a diagnosis of nervous dyspepsia or neurasthenia gastrica. A fatal hemorrhage is at times necessary to convince the physician of an ulcer in the duodenum. Ulcer of the duodenum, more than in any other portion of the alimentary tract, seems to create neurasthenic symptoms, irritability, odd notions about diet, etc. There is a definite clinical picture found in this disease, and according to so great an authority as the English surgeon Moynihan, the diagnosis may be made from the history alone. Allow me to quote Moynihan's words:

"There are a few diseases whose symptoms appear in such a definite and well ordered sequence as is observed in duodenal ulcer. It is not very uncommon for a man in answer to the question as to how long he has suffered, to reply, 'All my life.' If the earlier history is well remembered the patient will say that almost imperceptibly he began to suffer from a loss of weight, oppression or distension in the epigastrium after meals. Immediately after a meal there is ease, if pain or discomfort were present before, the meal relieves them and soon banishes them completely for a time.

Then again the pain is felt for two hours, three hours, four hours or sometimes for six hours later. If the food is entirely liquid the pain comes rather earlier. If the food is heavy, solid, indigestible, the pain comes later. Many patients say the pain comes when they begin to feel hungry, so that I have suggested the term hunger-pain."

The most constant and convincing sign which I have observed in duodenal ulcer is the occurrence of pain at night. The patient who eats his evening meal at 6 in the evening will retire at 9 or 10 in



perfect comfort, and waken with a gnawing pain in the epigastrium at 1 or 2 in the morning.

If he eats at 9 o'clock he will sleep peacefully until 3 or 4 A. M., when the same discomfort will waken him. Equally certain will he be relieved by drinking a glass of milk or eating a cracker or two. I remember one case especially in which this symptom was very well marked.

A young business man of 34 years was referred to me for stomach trouble, which had persisted for five years. After a careful investigation, a diagnosis of duodenal ulcer was reported to his family physician. The doctor, however, insisted he had only neurasthenia, and advised a trip to Europe, which the patient undertook. While in Switzerland he became acutely ill and entered a hospital. The surgeon made a diagnosis of duodenal ulcer, and endeavored to increase his resistance by forced feeding before operation. During this process he suddenly developed peritonitis. The autopsy revealed a ruptured duodenal ulcer as its cause. Operation is the only cure for this disease.

Some of the more interesting forms of nervous dyspepsia may be briefly mentioned.

**REGURGITATION.**—In this affection liquid or liquid with solid food is ejected from the stomach to the mouth. The relationship of the cardia to the stomach is the cause, and it is usually involuntary. Sometimes the patient can produce it at will. Dr. Bernheim presented a patient at a meeting of the Gastro-enterological Association in Philadelphia who could relax his cardia at will. When cured he felt worse.

**RUMINATION.**—Chewing of the cud. A condition in which the food returns without nausea in small portions through the stomach into the mouth some time after meals, after which it is masticated again and swallowed. Heredity and self acquisition are the causes. It may be acquired from imitation or from necessity. Koerner's case is interesting. A governess imparted her rumination to her two pupils; after the governess had been sent away, the children got rid of their rumination.

In some cases the patients have regurgitation, finally followed by rumination. One hundred and sixty cases to date, almost all males, all belong to the educated class, physicians, lawyers, professors, etc., only nine women in the list. Women probably have it, but do not speak of it.

Very frequent in idiots, epileptics, and the insane. Occasionally lasts a whole lifetime, sometimes in attacks and sometimes ceases with some event in life, such as marriage.

Alt says rumination occurs because food is not sufficiently mixed with saliva; on the other hand, Hubbard had a case of a patient who consulted him for the restoration of his lost cud. This man had no dyspepsia while he chewed it, but when the habit suddenly stopped he had dyspeptic symptoms. No relationship between the chemical conditions of the stomach contents and rumination.

NERVOUS VOMITING.—Nervous vomiting may be due to spinal or cerebral irritations, or to disease in other organs, or to neurasthenia or hysteria.

HYPERASTHESIA OF THE STOMACH.—In this condition there is an abnormal sensitiveness of the mucous membrane even after taking ordinary food. Patients have a sensation of fullness, slight burning, and some pain in the gastric region after meals. As a primary disease it occurs most frequently in chlorotic girls and women, sometimes in people with weakened constitutions. There is danger in diagnosing this when ulcer or cholelithiasis is present.

Cases of nervous dyspepsia which do not yield to usual means of treatment with suggestion may have: 1. Change of environment; may be sent to the hospital or to the home of a relative. 2. Rest in bed. One must be careful to study the individual before deciding what sort of a change will be most beneficial. We are in the habit of at once suggesting a hospital or sanitarium as the best change.

Such a plan may be so unattractive to the patient that all efforts toward improvement are in vain. Many times a camping trip or a complete change of occupation may be the turning point in the disease.

In obstinate cases some properly chosen change of scene is essential to a cure.

Massage is often beneficial. Over feeding—six meals a day—is always essential and many remarkable recoveries are accomplished in this way.

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## AN EXOSTOSIS ON THE PALATAL ARCH. A PIECE OF TOAST AND SOME SERIO-COMIC RESULTS OF THEIR MEETING

BY DOUGLAS H. STEWART, M.D.,  
New York

Far be it from me to claim any original ideas on exostosis, but if my profession is not to be made ridiculous before the dentists, it is necessary for me to call attention with earnest emphasis to a common and ludicrous mistake. As St. Paul might have put it, "What you

ignorantly know, that declare I unto you." If proof of the accuracy of my remarks and comments be requisite, then let me refer you to your dental friend with practice and experience. You will possibly find his amused grin at your question to be quite confirmation enough. If any dentist told me that he could not at least parallel my experience, my impression would be that he was a man either of limited practice, inattentive, unobservant, or perhaps all three.

Allow me to make a brief composite clinical history of four patients. All of the parties except the patients are unknown to me. The occurrences have much in common, space is saved, my idea is expressed, and I will quote exact words because a better picture may be drawn by so doing. Accuracy would require four distinct histories, but accuracy is not essential in this instance. Call the composite patient Mrs. A B C D (or 1 2 3 4).

Patient states that she discovered a tumor on the roof of her mouth. Called her dentist's attention to it. He said it had been there for years, was of no importance, was not mentioned because he had many such under observation and did not frighten people unnecessarily.

Patient's sister died of cancer, so she knew there was cancer in the family (cancer not oral).

The tumor became sore, inflamed, and had a white spot on it. Decided to consult a physician. He told her she must call frequently (one case daily), that the growth was inflamed and probably, if not already of a cancerous nature, only early removal would prevent its becoming so. She had come to me for advice as to what she should do. Here ends the composite history. Examination revealed an inflammation caused by bruising of soft tissues, which had been crushed between the exostosis and some (unseen) other hard substance which, resting upon the tongue, furnished the counter resistance. No battle, pestilence, murder or sudden death, as mentioned in the prayer book, could have caused any greater or more helpless terror than the cancerophobia which issued from the act of mastication and the resistance of a piece of toast. And I, oh I just ate humble pie, quieted the patients and held up the dentist's hands. It hurt. Prescribing boric acid brought about results which coincided with those anticipated and all is well—for the patients.

I had long wondered what would happen if such a patient returned to the dentist directly from the physician with no buffer, such as I was, to mitigate affairs a bit. I found out. To give the whole incident would take too long. Imagine a dentist speaking to a male patient under similar circumstances, imagine also the beautiful, slow, measured cadences of his faultless German, and imagine how the

sting and snap of the expressions were intensified by beautiful diction. This is what he said:

"You know well enough how careful and thorough we Germans are. You learned at your mother's knee how with us a doctor is a doctor and a dentist is a dentist, and both are scientific men. You thought it was so in this country, yet you found a doctor who talked to you about my work. He did not understand that to a highly educated German mind he was but a 'Cow talking Spanish, a blind man painting a picture of a camel or a shoemaker making pants.' Why, then, bother your head. Did you believe him?" And the man replied in English: "I should bother my head with the talk of a doctor which he is a dumb-sheeps-head? You fix it like you like."

There was much more. The incident was not amusing to me. Too near home.

Summary: Exostosis on the median line of the roof of the mouth is not a true tumor, unless the branch of a tree may be called a tumor. It is an overgrowth of a self-limited size and is often undiscovered, by the throat man for instance, because it is above his line of illumination and hidden by the teeth. It may be bruised by forcible contact with hard substances (commonly toast) during mastication. It should not be interfered with, because advancing age will stop its growth or it may fall off. Its effects on enunciation and mastication are nil. It is so common that if it ever developed malignant tendencies there would be plenty of instances registered in medical literature. It is easily found if one tips the patient's head back far enough to examine the oral dome, and its apparent junction with the posterior surfaces of the incisor teeth. But as I have said it frequently remains undiscovered, by physician and by patient, and unmentioned by the dentist until it is brought into collision with a piece of toast. The resulting damage and bruise frightens the patient, makes trouble for the physician, if he be not forewarned, and ends triumphantly for the dentist who lets it alone with all his might.

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## THE QUEST OF THE RAT TRAP

BY W. C. RUCKER, M.S., M.D.

*Assistant Surgeon General, U. S. Public Health Service*

In the strictest sense of the word this is not a scientific article. If you want to acquaint yourself with a special set of vagaries to which the human mind is a prey read this. This is light literature of the O. Henry type.—EDITOR.

Upon a fateful day the writer having a few moments at his disposal started out in search of a rat trap. He fancied with all the

ingenuity of youth that he knew something about rat traps, but he thought that perhaps there might be one or two which he had never seen. He wrote to several manufacturers for literature upon the rat trap which they made, and in an unguarded moment confided his quest to the representative of a large news association. The morning papers next day ran about a "stickful" on the quest; the afternoon papers took it up and amplified it. It being "dog days" season, and political events having reached the quiescent state which is equidistant from the convention and the beginning of the campaign, the newspapers eager for news and grasping at thrills, took up the burden of the song. The first day two ambitious inventors wrote the surgeon general, laying before him the beauty of their traps. The next day it was four, the next day sixteen. Proceeding in a geometrical progression, it was not long before the daily rat mail amounted to several pecks, gallons, or whatever measure mail is gauged by. Then the expressman began to frequent the Bureau of Public Health, and each morning saw his rotund form bearing rat traps of various sizes, kinds, and descriptions. Special deliveries brought plans, specifications, certificates of efficiency, copies of patents, drawings, and photographs, and the multitude of designs were as weird as the mental projection of a midnight eaten mince pie. There were cage traps, barrel traps, snap traps, figure four traps, double jawed traps, and traps, for which unfortunately our language has no descriptive adjective. There were electric traps, scale traps, wire traps, brass traps, iron traps, paper traps, and wooden traps. The rats were to be struck, squeezed, strangled, drowned, guillotined, and electrocuted, and in an ecstasy of inventive fervor one genius sent in an apparatus which would make the rats sneeze themselves to death. Multifarious and curious were the suggestions offered by persons from all over the United States. One farmer wrote that a good way to catch rats was to fill a tub two thirds full of water, place a board to the edge of it and sprinkle some bran on the board and then to cover the surface of the water in the tub with a few handfuls of bran. The rat imagines that there is a tub of bran before him, and jumping in drowns himself.

A correspondent offered the following plan for the killing of rats: "Take a large iron pot, put a stone about the size of your fist in the bottom. Fill the pot with water, so that the island is almost covered. Tie a piece of paper over the top of the pot, and make two slashes across it at right angles. Put a piece of cheese on the place where the slash is cut. The first rat jumps for the cheese and is precipitated into the water, where he crawls up on the island and



screams for help. Another rat comes to assist him and also falls in. Then occurs a fight to see who shall have possession of the island. The rest of the rat family is attracted by the noise. They come to see the fight and get so interested, that they lean over the edge of the pot, fall in, and all get drowned."

Another inventor traveled all the way from one of the interior States to bring a device, beside which the stone flinging engine of the ancient Romans was a mere plaything. In order to use it you put a piece of cheese in the back of the apparatus, wind up a large clock spring, and then set it where the rats will come to it. The rat going for the cheese steps upon a pedal, and thereby releases a heavy iron lever, which throws the rat fifteen feet or more and dashes out his brains against the wall. It was arranged so that it would reset itself automatically, and kill at least twelve rats in a single night. One of the office boys named it the "Ratapult," and the name has stuck.

One lady sent an elaborate drawing of a cage trap, arranged upon the plan of a three story tenement. It was constructed in such a way that all it needed to make it a faithful representation of the latest Paris hat model was the addition of a feather and a bow of ribbon.

At first the rat collection occupied one table. Then it spread over two tables, and finally it got so large that it was formed into a regular exhibit and forwarded and placed on view at the International Congress of Hygiene and Demography.

As a psychological study the quest has been more than worth while, and it has resulted in bringing to light a number of most excellent traps which are well fitted for the purpose of catching rats in an antiplague campaign. It is true that the majority of inventors relied with great optimism on the coöperation of the rat. Many of them seem to forget that the primary purpose of a rat trap was to catch rats. Many of the devices were heavy and expensive, but there were few which answered the requirements of the sanitarian's needs. On the whole the snap trap offers the greatest promise, and the best of these was the invention of an inspector in the Public Health Service who had been doing antiplague work since 1907. This trap is flat, which is a decided advantage. It is very cheap, easily baited, and will act with promptness and precision the moment the rat touches the bait, whether he pushes it or pulls it. Of the cage traps, the large wire French trap, shaped somewhat like a loaf of bread, appears best. The barrel trap, which is older in its idea than the pyramids of Ghizeh, none the less deserves its meed of praise.

The quest is not ended, for even as this is written an enthusiastic

inventor has come to lay his offering on the shrine of Æsculapius. By and by the story of the quest will be perpetuated in the patent insides of the country newspapers, and so it is expected that in the gathering years many a farmer boy reading the *Podunk Gazette* at the close of a winter day will be fired with the desire to inscribe his name beside that of the immortal Robert Fulton and the far famed Eli Whitney, and thus he will produce at the cost of much labor and infinite pains another weird addition to the collection.

The moral of this tale is, do not start anything unless you can see the wind up.

## THE TRUTH BEHIND YOUR DREAM

BY LEONARD KEENE HIRSHBERG, A.B., M.A., M.D. (Johns Hopkins)

Across a sea and continent, beyond the Cisalpine mountains, even yonder behind Napoleon's Austerlitz, Professor Sigmund Freud, of Budapesth and Vienna, reigns as a modern Genii, with a newer kind of magic by which dreams are translated into real facts. Dr. Freud has succeeded, according to his adherents among the scientists and physicians of Europe, Japan, and America, in removing all mysticism and superstition from dream life, and has triumphantly placed the interpretation of dreams upon the secure foundation of the newer and even more marvelous scientific methods.

Professor Freud's fundamental thesis is that the dream is a complex mental tapestry, an acknowledged and manifest vagary of the mind which conceals some suppressed truth. In his untranslated writings, one of which, *Der Traumbedeutung* (the Significance of Dreams), is the largest volume ever written by a scholar upon the subject of dreams, he publishes a list of objects which when found in dreams can be interpreted always to mean almost an opposite thing in your waking life. There, too, he gives examples of various dreams that were related to him by friends and patients, and in a series of brilliant analyses traces out the most obscure, hidden, and sublimated events of the dreamers' lives.

This symbolism of your sleeping state is made practically valuable by doctors to diagnose nervous and mental maladies, by lawyers to expose their clients' forgotten experiences, and by detectives to unfathom obscure mysteries. The fanciful phantasmagory of a dream contains the hidden springs of action of your waking life, as well as the long forgotten or even unconscious events of your infancy, babyhood, youth, adolescence, and early adult days.

Curiously enough—and this is where I as well as other followers

of the Viennese physician diverge from Professor Freud's hypothesis—all dreams, according to his view, are remotely yet directly traceable to the mating instinct, which is normally considered as necessary to the safety and multiplication of the race. Every fleeting midnight fancy, every woven, dreamy state, if its symbols are correctly transposed into waking thoughts, will indubitably be shown to contain one such suppressed wish. The true Freudians all maintain that even though a little boy dreams of slushy frolic with his father, or the father dreams fondly of a childhood boy-friend, it is yet a mating instinct of a primitive type. Perverted instincts such as these are the normal feelings of all infants they say. Instead of normal adult instincts that aim towards possession of the opposite sex, there is in early childhood a "homo" yearning for the same sex. In adult waking life, this has been by education, training, association, and civilization completely suppressed, drowned out, hidden, and covered up by the rigid systems of normal habits. The only time that this homosexual instinct openly manifests itself in adult life, is when certain dream symbols which indicate it appear. These are enumerated in the book of Professor Freud and the papers of Dr. Ernst Jones of Toronto, Canada. Insanity, hysteria, nervous ailments, and absent mindedness, or day dreams, all allow this unchecked cerebral state to expose itself.

Then it is that a physician or psychoanalyst trained in such methods begins his real work, and by means of this newer, higher criticism, this modern Rosetta stone of dream interpretation, he succeeds in searching out with dictagraph like thoroughness the innermost recesses of your soul.

The other day one of my patients, who had heard one of my lectures on the Freudian analysis of psychic states, related to me the following experience, and asked for its explanation. "About a year ago I dreamed that my brother-in-law arose from his bed in his pajamas, walked quietly to a window in his room—a second story one—paused for a moment, and then jumped out. He was killed, although I did not see him dead in the dream." This was the end of the dream, but: "A short time after this dream, which I felt was a divine premonition, my brother-in-law was brought home killed. He had been hit over the head with the rung of a chair."

Now the analysis of this dream was reluctantly but unequivocally admitted to be correct by my patient Miss D——. It was as follows:

The patient Miss D—— is a highly neurotic maiden lady, given much to patronizing palmists, mystics, mind readers, fortune tellers, and spiritualists. She unconsciously had a suppressed and unrecognized mating instinct towards her handsome brother-in-law.

This was symbolized in the dream by his manly form pictured in outline by way of his pajamas. This longing, concealed completely from her waking consciousness, was short circuited in the symbolic dream into the displaced or "sublimated" fear that he would—the suppressed wish that he would not—be killed, and thus lost to her forever.

Now he was a drinking man, and when much gone in liquor was mostly of a quarrelsome, fighting disposition. Several times he had been seriously injured in street brawls. Here then was the source of the "*divine premonition*." With the knowledge that he was eternally fighting, and getting the worst of it, came the certain impression that he would sooner or later fall an inevitable victim in one of these sprees.

Thus the unconscious love of his person—*pajama* symbol, and the knowledge of impending death as evidenced in the many past injuries—*fatal fall* symbol, brought the analysis to completion.

Often, indeed, the exposure of his suppressed wishes brought to the individual's attention by dream analysis is little less astonishing to the person than to the expert. I have several times succeeded in tracing lost jewelry and valuables, supposed to have been stolen, by tracking down the hidden object, by way of dreams. There is neither magic, occultism, nor mysticism in this. It is strictly a matter of fact method of Munsterbergian gymnastics and Freudian *Traumbedeutung*; the allegory or mythological picture of the sleeping, unchecked brain, and a common sense reading of the secret script.

Freud puts briefly into a hypothetical law the whole story of the dream. Every dream passes, says he, through a condition of contraction, narrowing, or crystallization; only to be followed by its dislocation into a diminutive or exaggerated pose for its third position amidst rare scenery. In other words, any actor or object elaborated in a dream is first disguised, then enlarged or diminished or caricatured, and finally given a rôle in the moving mental scenario. This rôle is usually the symbol of a wish long hidden from your happy or painful—as the case may be—waking life, but usually realized in some bizarre manner during your painless sleep.

One of my patients, Miss M——, a trained nurse, is a romantic young person, whose childhood was spent upon the large estate of her one time wealthy parents. There she romped and rode together with two brothers nearly her own age.

Recently she had this dream. She was a boy dressed in breeches and buckskin at the Court of St. James. She saw herself as the illegitimate and unacknowledged son of the Duke of Buckingham.

In this character she and another young swashbuckling blood of the court circle were both in love with the same person, evidently a princess or young woman of distinction. Suddenly while he (she) was making amorous protestations of devotion to the princess (?) the other swain burst through the (unbroken) door, and they fought a duel. Miss M—— as young Buckingham is wounded, and the dream became confused or ended.

The analysis of this dream briefly was that the romantic memories, combined with much historical novel reading, had elicited a longing for that robust, outdoor life of her happier childhood. A certain married gentleman had also given her an indication of unsolicited affection, which did not appeal to the dreamer. The duel symbolized a quarrel with the man's wife and a willing defeat at the latter's hands.

Instances of the sort of dreams described by Dr. Freud in his volume, which prove that successes are won, ambitions attained, and unfulfilled wishes always gratified in lieu of the bitter disappointments of waking states, can be cited from everybody's experience.

Miss L——, another patient about sixteen years old, narrated to me this dream. Employed as a typist in the office of an enamel and tinware factory, she came in daily contact with the son of her employer. He merely dictated a letter or two each day, and had never otherwise indicated any interest in her. She dreamed that he asked permission to call upon her, and she consented. He appeared *in her bedroom*, and kissed her, when the dream changed, and he was escorting her up a broad stairway of what was evidently his home. His mother and sister, all powdered, puffed, and crinolined, like story-book dowagers and offspring, refused either to acknowledge the son's introduction to her or admit her into their home as his wife. She was abashed and downhearted, and awoke in tears.

The interpretation of this dream is so apparent, the gratified longing is so open, that Miss L—— could not deny the meaning.

Miss D—— was the constant companion of one of four brothers. The *camaraderie* between them was of the Damon and Pythias sort. She dreamed one night that her brother was dead in his bed, and had nothing over him but a sheet. She could not make her mother or the rest of the family realize that he was a corpse. They answered "All right" when she apathetically told them, but they continued to attend to their regular duties, and she became so amazed that she woke up the dead brother and told him about it.

Seeing the form of the brother was proof that she held even more than a sisterly regard for him, and the apathy and disinterestedness of the family, was the attained wish of a closer relationship with



him than was ever overtly realized in her waking, conscious moments. Finally the restoring her brother to life and understanding was the wish to have him understand that a closer *entente* existed between them than between any others in the family.

But much knowledge remains yet to be acquired about the psychology of dreams. As much as the searching rays of the Freudian calcium have penetrated the Stygian copses of the sleeping brain, as far as the kymographic stylus has explored the ant hills of dream mysticism and spiritistic nonsense, there are many obscure, tortuous, and devious mental chasms, as well as phantasmagorical waterfalls, that need exploring, excavating, and explaining.

The premise of Freud may or may not be true, his sex-wish hypothesis, and symbolic mask and wig interpretation of that premise, may or may not be a *reductio ad absurdum*. Yet withal, we must use the rough instruments at hand until better ones be given us, and no one will deny that a poor stick to beat a mad dog is better than no stick at all. Analogously, much new knowledge is the outcome of this psychoanalysis, many maladies are intelligently explained away, and in the hands of such adepts as Detective William Burns and States Attorney Whitman, criminals are thus quickly detected. At present who can expect more?

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### ARTIFICIAL MILK

Synthetic milk is the latest product of the chemical laboratory. Several eminent scientists, including Sir William Crookes, examined and tasted cowless milk at a demonstration in London and pronounced it palatable.

The fluid, which is the discovery of three German chemists, is made at Frankfort-on-the-Main. It is the same color as the animal liquid, and the inventors claim that it is more nourishing and more easily assimilated than the cow's product, and nontuberculous.

The method of manufacture is kept secret, but it is composed entirely of vegetable ingredients, digested by machinery instead of by the cow, and is said to keep sweet far longer than ordinary milk. Its strength, it is said, can be standardized for the family, infant, or invalid.

It is proposed to build a factory in London to make and sell the family variety at six cents a quart.

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## EDITORIALS

### ELIMINATION

Elimination is the throwing off from the body substances which have served their purpose, and products of metabolism, waste products of oxidation and tissue activity. The most important eliminating organs are the lungs, kidneys, intestines and skin with accessory means of elimination in menses, milk, and bile.

Elimination by the lungs is carried on by respiration: (1) external, the exchange of gases in the lungs proper, and (2) internal, the exchange of gases between the blood and the tissues during circulation. Chemically, respiration consists of (1) absorption of oxygen; (2) exhalation of carbon dioxide; (3) release of a certain quantity of nitrogen, and (4) exhalation of vapor or water. The real explanation of the current movement of the two gases is the difference in amount and pressure,  $\text{CO}_2$  moves outward and  $\text{O}_2$  inward. The gases form true chemical compounds with other bodies when the partial pressure of gases is high and these are again broken up when pressure is lowered. Thus oxygen and carbon dioxide, being in loose combination with hemoglobin, are easily affected by the carrying pressure to which the blood is subjected. In the lungs the pressure of carbon dioxide is higher in the blood than in the air

sacs, and is therefore forced out; while in the body the pressure of carbon dioxid is higher in the tissues than in the blood and the same process takes place.

The kidneys eliminate water, 50 oz., salts, urea 500 grains, and uric acid 7 grains per diem. Water and salts are products of filtration from renal glomeruli, while the components, urea and uric acid, that are held in solution are products of special activity of the elements, of the epithelium and the convoluted tubules. The amount of water is in direct relation with the pressure of the blood in the renal arteries and the glomeruli. However, hydrostatic pressure is not the only factor, for the epithelium exerts both positive and negative influence, positive in that some of the salts of the urine are here secreted and negative in that the serum albumin of the blood is prevented from passing through. Urea is formed through metabolism tissues, and it is in this form that most of the nitrogen of the body is eliminated. A man secretes enough poisonous material by the kidneys in two days to cause death.

Secretion of sweat is not a mere filtration alone that varies according to blood pressure, but a process dependent on the direct action of the nerves on the gland cell. In round numbers man secretes about two pounds of sweat a day, averaging 1 per cent solids. Sweat is important in the elimination of water and alkalies, also of fatty volatile acids. There is double the quantity of water in the sweat than is eliminated by the lungs. It supplements the kidneys and carries off medicines and poisonous vapors. After large doses of quinine sweat is bitter; it is sweetish in diabetes, although glucose has not been definitely found in it. In the offensive sweat of the feet are found leucin, tyrosin, valerianic acid, and ammonia.

Although the bulk of feces is composed of substances taken into the body, yet they are substances which not only have served their purposes in the economy, but which if retained would be very deleterious. Water comprises about 75 per cent of the feces, the remainder is composed of undigested residue; undissolved substances, of foods, like muscle fibers, connective tissues, etc., putrid products, inorganic salts, microorganisms, and the end products of digestion.

Menstruation is a form of elimination, as by it useless blood, the unused ovum, dead and disintegrated epithelium lining the uterus

and mucus from uterine glands are expelled to pave the way for a new influx of blood, a fresh ovum, and a new lining for the uterus in case this ovum is impregnated. The lochial discharge following childbirth throws off clots, membranes, and dead epithelium which are no longer of any use.

The following table shows the deleterious substances to be eliminated and the organs of elimination of each in order of importance:

WATER	CARBON DIOXID	NITROGEN*	SOLIDS
Kidneys	Lungs	Kidneys	Intestines
Skin	Kidneys	Intestines	Kidneys
Lungs	Skin	Lungs	Skin
Intestines		Skin	Lungs

The classes of agents which might be classed as eliminants are expectorants, diuretics, diaphoretics, and purgatives. Ammonium chlorid, apomorphine, and creasote are among the more important stimulating expectorants. As a diuretic caffein acts directly on the renal epithelium, digitalis acts by increasing blood pressure, squill acts in toning up and exciting to normal effort a kidney depressed by disease or congestion due to cardiac trouble. Pilocarpin, the most important diaphoretic, acts by stimulation of the nerve endings rather than by vasomotor palsy. It may cause the secretion of a pint of sweat. Calomel, cascara, castor oil, senna and the hydragogues are the most commonly used purgatives. In addition to medicinal agents there are a few mechanical agents, such as massage, hot air, and hot baths which tend materially to increase elimination.

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## THE INTERNAL SECRETIONS

Almost all that is known of the internal secretions is the result of the past twenty years' study. Already, however, a large mass of knowledge regarding these hitherto unknown secretions has been piled up, and yet we are, so to speak, but on the threshold. As long ago as the year 1855, Claude Bernard used the term internal secretion to describe the glycolytic function of the liver. Brown Séquard, however, may be regarded as the originator of the present

day views on internal secretions, as in 1889 he put forth the theory that all tissues give off something or other to the blood which is characteristic or specific and which is of importance to the nutrition of the body generally.

During very recent years attention has been largely centered upon the secretions which are directly concerned with the physiology of digestion, and much has been learned with respect to the internal secretions of the liver, pancreas, kidney, intestinal glands and gastric glands, all of which secrete externally also. To this knowledge Pawlow has made important contributions, and Starling has supplemented and to some extent revised Pawlow's findings by discovering that the pancreas is normally excited to secrete, in response to stimuli originating in the gut; not, as Pawlow thought, by means of the nervous system, but by the dispatch of a chemical messenger or hormone from the seat of stimulation to the reacting gland. Furthermore, subsequent investigations have demonstrated the existence of other chemical correlations of the same nature: that by the detection and isolation of such hormones, we may in time be able to influence and control a number of the chief functions of the body. For the production of the pancreatic secretion the hormone or secretion, as Bayliss and Starling termed this chemical messenger, is not of itself sufficient. By a series of ingenious experiments, it was shown that the epithelial cells lining the gut contain a body, prosecretin, which is insoluble in water, alcohol, or salt solution, but which under the influence of agents, such as acids, undergoes hydrolysis with the splitting off of a new body: secretion. The introduction of hydrochloric acid, therefore, into the small intestine acting on the prosecretin favors secretion, and is thus responsible for the production and flow of the pancreatic fluids. It would be impossible within the scope of an editorial article to enter at any length into the question of the internal secretions of the organs concerned in the digestive processes. Suffice it to say that hormones or chemical messengers according to the most recent views are the predominating factors. If an internal secretion is deficient, it is due to the fact that its hormone is not acting. It goes without saying that although much has been learned concerning this matter of late years,



much yet remains to be learned, but this may be said, that the freshly gained knowledge opens up a new field of treatment. For instance, there are those who assert that a certain order of cases of diabetes mellitus are owing to an insufficiency of the internal secretion of the pancreas. The object then of treatment should be to restore the normal functions of that organ by inducing the hormone to do its work in the usual way. Some assert that this can be done by the administration of pancreatic extract. Enough is not yet known to dogmatize, but it is significant that many authorities appear to support, at any rate to a certain extent, these views. For example, Professor Kemp in his recent work on diseases of the stomach, intestines, and pancreas, after quoting the report of a case of chronic pancreatitis, demonstrated by operation by Robson and Cammidge, in which after the administration of "pancreon" the neutral fat was diminished over 40 per cent and the fatty acid increased 11 per cent in the stools, says the use of pancreatic extract might, therefore, be of some aid to diagnosis, especially if improvement in the stools, with diminished fat excretion, resulted therefrom. As Professor Kemp sagely remarks, this would at once suggest pancreatic deficiency. It would appear also to suggest that a means of treatment is at hand. It may happen that further and accurate knowledge of the internal secretions will revolutionize treatment of disease.

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### THE "PENNY SIGNS" IN PLEURISY AND ASCITES

Dr. M. Brelet of Paris, in the *Medical Press and Circular*, October 9, 1912, calls attention to the fact that several years ago Professor Pitres, of Bordeaux, pointed out a new sign in pleurisy with effusion, based on the transmission of the sound obtained by tapping one coin on another, which he termed the *signe du sou*. Dr. Janney has taken up the matter *de novo*, and makes it clear that Pitres' sign is often of the greatest assistance in the diagnosis of pleural effusion. He also extends the usefulness of this sign to the detection of ascites. To elicit Pitres' sign in a case of pleurisy with effusion, a coin is placed flat on the chest, in front, just below the nipple, and an assistant taps it with another coin striking vertically. While this is being done the observer listens over the back and side

of the thorax. If the interior of the thoracic cavity be occupied by a homogeneous medium, either solid or liquid, which conducts sound more perfectly than normal pulmonary tissue, the percussion sound is a clear ringing silvery vibration. The laws of the transmission of sound are, of course, the same in the abdomen as in the thorax, so that Lesieur and Rebattu have extended its use to the diagnosis of the presence of ascitic fluid in the peritoneum. The patient lies on his back and a pillow is placed under the pelvis. Then in order to ascertain the mobility of the fluid the patient is made to turn on his side or to sit up. An assistant applies a coin over the abdominal wall in the lumbar region or the iliac fossa, which he holds firmly between his two fingers. With the other coin in his right hand he taps perpendicularly on the coin, graduating the shock to the thickness of tissue to be penetrated, beginning gently and steadily increasing in strength. During this time the observer applies his stethoscope over the abdomen at a spot exactly opposite to the position of the coin. The limit of the effusion can be determined by changing the relative position of the coin and the stethoscope.

The penny sign is not pathognomonic of pleural effusion, but as massive indurations of the pulmonary parenchyma are much more uncommon than pleural effusions, this sign, taken in conjunction with the more or less complete series of other signs and symptoms, indicate the existence of effusion into the pleural cavity. Neither is the "penny sign" pathognomonic of ascites; it merely shows the presence in the abdomen of a homogeneous medium, either liquid or solid, in an uninterrupted layer. Therefore, when the sign is positive we still have to differentiate ascites from fibroid or pregnancy and, as a rule, this can be done by noting that in the first case, in order to obtain the silvery tone, we have to percuss in the lower parts of the abdomen, whereas, in fibroma, or pregnancy, the sign is perceived when percussing over the epigastrium.

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#### TREATMENT OF PAROXYSMAL TACHYCARDIA

Emil Kraus in the *Prager Medical Wochenschrift*, June 27, 1912, reports a case of paroxysmal tachycardia of many years' standing, finally progressing to marked dilatation of the organ, with low blood

pressure and pronounced dyspnea, in which an intravenous injection of one milligram of amorphous strophanthin, given as a last resort after other remedies had lost their efficiency, resulted within two hours in a complete transformation of the patient's condition. The size of the heart was greatly reduced from that denoting extreme dilatation to normal, the rate of its beat reduced to seventy four, while the dyspnea and cyanosis so severe as to suggest a fatal termination of the case were entirely relieved.

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#### A SYRUP WITH MAPLE SUGAR FLAVORING

At this time, when so much is being said about the high cost of living, it may be interesting to note that a West Virginia man has patented what he terms a saccharine article of commerce which is composed of sugar and an extract obtained from the outside lifeless bark of the rock or sugar maple so that the syrup will have a maple flavor. In the process of making this article, the outside lifeless bark taken from the trunk of the rock or sugar maple tree is boiled in water until an extract of the desired strength is obtained and the liquid is then strained and commercial sugar added and boiled until the strength is satisfactory.

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#### OPEN AIR EXERCISES FOR THE GOUTY

In the case of middle aged men in affluent circumstances, it is difficult to get them to moderate their appetities and regulate their diet, but they will often accede to the suggestion of taking more exercise. Motoring is good, but a long walk in the country every Sunday will do more to keep down the gouty proclivities. Exercise in a stuffy gymnasium is irksome and monotonous and is soon abandoned.

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#### ALBUMINUREA IN PREGNANCY

Siedeberg, in the *British Medical Journal*, October 19, 1912, declares that there is no doubt that the presence of albumen during pregnancy is a serious matter, and likely to presage complication during the labor. He makes an earnest plea for the more frequent examination of the urine and the more careful supervision of the general health, in the later months, by the one engaged to attend the patient.

## DIGEST OF CURRENT MEDICAL LITERATURE

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*The Massacre of the Tonsil.*—During the last few years, writes John N. Mackenzie, M.D., Professor of Laryngology and Rhinology Johns Hopkins University, Maryland *Medical Journal*, September, 1912, I have been repeatedly urged by medical friends to give public utterance against the indiscriminate and wholesale destruction and removal of the tonsils, which, far above all others, is the chief and most glaring abuse in the laryngology of the present day. One of these friends, a distinguished general surgeon of wide experience, large practice, and exceptionally high professional skill, gave me as his opinion that of all the surgical insanities within his recollection this onslaught on the tonsils was the worst, not excepting the operation on the appendix. In a report of a well known children's hospital in Baltimore are these words of sanity and wisdom:

"A large and annually increasing number of cases apply for operation for hypertrophied tonsils or for adenoids. Of these the adenoids practically all need and receive operation with benefit and without injury.

"The recent universal inspection of the throats of school children has revealed the fact that nearly all children at some time of life have more or less enlarged tonsils. That most of this is harmless if not actually physiological, and that their removal in these cases is not only unnecessary but injurious to the proper development of the child is our conviction."

The functions of the tonsils are, in the present state of our knowledge, unknown. Whether they are portals of entrance or avenues of exit for infection; whether they protect the organism from danger or invite the presence of disease; whether the pathogenic bacteria sometimes found in them are coming out or going in; whether they are manufacturers or storehouses of leuco or lymphocytes; whether they represent the extreme outlying ramparts and that, therefore, their destruction would mean the removal of the battle line against infection from the throat to the neck lymphatics; whether the efferent current of lymph exceeds the afferent in volume or velocity; whether, which seems probable, there is an endless flow of lymph from their interior to the free surface, which unchecked, prevents the entrance of germs from the surface and washes out impurities from within; whether the organ possesses an internal secretion, *sui generis*, or whether, in fine, the tonsil structure is in any way essential to the well being of the individual, are

questions which have as yet received no definite solution, but which are full of interest and furnish material for instruction, discussion, and debate. Until the functions of the tonsils are known, the final word on its removal cannot be spoken.

Whatever its functions may be, and the production of leucocytes is undoubtedly one of them, the tonsil is not, as is generally taught and believed, a lymphatic gland. The general ignorance of this fact has led to the useless sacrifice of thousands of tonsils, on the fallacious assumption that their functional activity may easily be replaced by the myriads of other lymphatic glands in the body. The physiological integrity of the tonsil is of the utmost importance in infant and child life. The gland appears early in embryonic life (fourth month), attains maturity at the end of the first year of infancy, and at or about puberty tends to diminish in size. It does not develop as a lymphatic gland from a plexus of preëxisting lymph vessels in the mesothelium, but as an ingrowth of endothelium from the second branchial pouch and, therefore, in its origin must be classed with the thymus and the thyroid, the former originating from the third, the latter from the fourth, while the parathyroid takes its origin from the third and fourth branchial pouches, all by inbudding of the endothelial lining of the primitive pharynx.

The rôle of the tonsil as portals of infection, like all new doctrines in medicine, has been greatly exaggerated. To state that they are in certain cases the avenues through which pathogenic organisms reach other organs is simply to state an incontrovertible proposition, in the light of present day research. But to make them responsible for a long Iliad of woes which has been laid to their account is to remove the whole question from its legitimate place in the region of cold clinical fact into the atmosphere of fads and fancies. Some absorption takes place in and from the tonsil, but it is far less than that which occurs in the more abundant and reception lymphatic structures of the nose and nasal pharynx. The tonsil, moreover, is not built anatomically as a gateway of infection.

The hypertrophied lymphatic tissue of the vault of the pharynx (adenoids) does harm chiefly through obstruction. Restore normal respiration in the child, and in a large number of cases the tonsils will take care of themselves. Even if the glands should remain large, if they are giving no trouble, they may be safely left *in situ*, for as their growth does not go on *pari passu* with the growth of the rest of the pharynx, the time soon comes when they become inconspicuous in the fully developed fauces.

The mere size of the tonsil is of itself no indication for removal except it be large enough or diseased sufficiently to interfere with respi-



ration, speech, or deglutition, in which case it, or a sufficient portion, should be taken away without delay. A large tonsil does not necessarily mean a diseased tonsil, nor does a small tonsil always indicate a healthy organ. Tonsils apparently diseased may consist of normal tissue, and, on the other hand, perfectly normal looking glands may be found pathological microscopically. The tonsil may be greatly enlarged, may extend far down into the pharynx or be buried deeply in the palatine arcade, and yet not interfere with the well being of the individual. Such tonsils are the special prey of the tonsillectomist. If they are not interrupting function, they had best be left alone, for they are doing no harm. The change in anatomical relations after operation is often so great that function is crippled more after their complete removal than it was before. Moreover, it occasionally happens that the resurrection of a "buried" tonsil is followed by the burial of the patient.

In the permanent removal of tonsil disease, equally good and in the long run even better results may be obtained in a large percentage of cases by measures less radical than those usually employed at the present time. Out of the multitude of examples, take the case of recurring quinsy, for which complete enucleation is done. In this condition it has been found that it is frequently only necessary thoroughly to slit up and shrink the upper lobe of the tonsil. Most quinsies occur in this situation, and the destruction of that part of the tonsil is all sufficient to prevent recurrence. By this method enough of the organ is left to entirely perform its function.

How are we to offset the irresponsibility of the responsible? We hear on all sides. Look at the results. Results? Here is a partial list from the practice, not of the ignorant, but of the most experienced and skilled. Death from hemorrhage and shock, development of latent tuberculosis in lungs and adjacent glands, laceration and other serious injuries of the palate and pharyngeal muscles, great contraction of the parts, removal of one barrier of infection, severe infection of the wound, septicemia, troublesome cicatrices, suppurative otitis media and other affections, troubles of vision and voice, ruin of the singing voice, emphysema, septic infarct, pneumonia, increased susceptibility to throat disease at the seat of operation, pharyngeal quinsy, and last, but not least, tonsillitis.

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*Sodium Citrate in the Treatment of Pneumonia.*—We have in pneumonia the following conditions resulting from the pneumococcus or streptococcus infection, says Weaver in the *New Orleans Medical and Surgical Journal*, September, 1912. First, obstruction to the circulation of blood through the hepatized lobes or lobules;

second, a somewhat high degree of viscosity and coagulability of the blood; third, a diminished alkalinity of the blood due to the rapid disappearance of sodium chloride and other salts. From the third observation it would follow that our treatment should aim to restore the alkalinity of the blood by the plentiful supply of the alkaline salts that are applicable and necessary to its normal functions, which will reduce its viscosity and coagulability and at the same time increase its antitoxic power as it flows more freely through the infected area. Viscosity is largely responsible for the slow and more or less stagnant current of blood through those vessels, while the exudate may completely dam off a portion of the tissue.

While in normal tissues vasomotor control may allow blood of greater viscosity to flow without appreciable increase of cardiac energy, in inflammatory and exudative conditions, such as in the hepaticized lobe or lobules, the vasomotor system is cut out and the thickened blood must percolate through the obstruction, or require a greatly increased blood pressure, if there is any circulation at all. Blood of greater fluidity would pass more freely and with much less cost of cardiac energy. While viscosity and coagulability are not the same, they are closely related. Both conditions are probably dependent in part upon the action of the calcium salts in the serum, which action is inhibited by the alkaline citrates.

While the alkaline salts are necessary to maintain a normal fluidity of the blood in health, in acute febrile disease these salts are rapidly eliminated at the rate of about half an ounce daily. These salts are not replaced from the restricted diet upon which most fever patients place themselves by loss of appetite or other reasons. Löwy and Richter have shown (*Virchow's Archives*, 1896) that leucocytes increase in numbers in proportion as the alkalinity of the blood becomes more marked. While Metchnikoff states that alexin, a trypsin like ferment, acts only in the presence of an alkaline salt, and when relieved of the salts by dialysis the serum loses its hemolytic power, which is instantly restored on the addition of the salts. Hence with increased alkalinity comes increased antitoxic power, an active leucocytosis which insures increased fluidity, thus bringing about an active hyperemia. Thus we conclude that sodium chloride and possibly other alkaline salts should be supplied in normal daily amounts with the diet or otherwise and sodium citrate be given in sufficient dosage to render the blood noncoagulable and of greatest possible fluidity. Sodium citrate may be given in large doses to produce this effect without harm or discomfort to the patient. It may be given as much as one dram every two hours if necessary with a small quantity of citric acid or lemonade. The average dose for

adults is from 30 to 40 grains every two hours. In most cases, especially in children, the temperature, pulse, and respiration will fall to normal inside of twenty four hours, thus resembling a crisis. The lungs will clear up a little later, and until this is completed the citrate must be continued at the same dosage. By this treatment the lung seems to escape the third stage, the exudate being absorbed without change.

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*The Complicated Physiology of Digestion and Absorption* is as yet far from final solution and comprehension. In the upper part of the digestive tract (E. P. Quain, *Journal A. M. A.*, July 6, 1912) physiologic chemistry explains more or less successfully the processes involved in digestion. But the exact manner in which the intestinal mucous membrane cell takes up many of the products of digestion from the intestine and passes them into the circulation is not well determined. The mucous membrane seems to be a most wonderfully appointed living chemical laboratory. Some of its cells are capable of producing ferments which subdivide and chemically prepare food substances so that other cells may absorb them, reunite elements and form new chemical compounds, which pass on into the capillaries and lymphatics. The small intestine also produces a ferment which destroys bacteria, as shown by Fleiner.

In the ileocecal region a most varied bacterial flora complicates still further these physiologic problems. The activity of these bacteria on the various food elements, on the digestive ferments, on the cells of the mucous membranes and on the bacteria themselves is far from being fully understood. In the cecum certain varieties destroy the digestive ferments, thereby ending digestion, while others cause fermentation and putrefaction of unabsorbed products of carbohydrate and proteid foods, respectively. Still other bacteria seem to have a mission of regulating the number and life-history of the former varieties. The *Bacillus coli communis* group probably belongs to this class. After the fluids have been absorbed from the bowel contents in the colon and the fecal masses are hardened, the bacteria are found to be mostly dead. Dead bacteria make up one third of the volume of hard feces.

The interrelationship between the various bacterial groups and between them and the food products and the physiologic elements of the intestine must be a certain equilibrium. This interdependence between the elements involved may be quite individual. The life history of the majority of these bacteria is short, lasting but a few hours. Before meals the small intestine is nearly if not quite sterile, and in the large bowel the bacteria are dying off rapidly, owing to

autotoxic activity. After a full meal the bacteria again proliferate with astonishing rapidity throughout the intestinal tract. When generations follow one another in such rapidity, evolutionary changes may be possible within the space of a few months or years. It is reasonable, therefore, to think that each individual may have his own peculiarly developed type of a given bacterium. (*Bacillus colic communis*, for instance), which in the course of time and development has become necessary in this particular intestine to balance and check up the activity of the other bacteria and ferments. According to Kendall, the greatest interdependence among fecal bacteria exists between the fermentative and the putrefactive types—the former decomposing the carbohydrates and the latter the proteids. A marked disturbance of their relative activities will cause excessive gas formation and perhaps diarrhea, the symptoms of so-called “intestinal fermentation.”

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*Relapses in Typhoid Fever.*—Ziegel in *New York State Journal of Medicine*, July, 1912, has studied twenty five relapses in twenty one cases, and comes to the following conclusions as a result of this study and a review of the literature: A relapse in typhoid fever is to be defined as a characteristic repetition and regular evolution of some of the cardinal signs of the disease after complete defervescence and a distinct apyrexial period. The relapse is a true septicemia as well as a bacteriotoxemia, as has been proved by recovery from the blood of typhoid bacilli. The underlying causes of the repetition or renewal of the characteristic lymphoid changes in the small intestine, which make up the pathological basis of the relapse, are unknown, though several hypotheses are quite plausible as explanations. Relapses are as frequent at the present time as they were prior to the observance of strict precautions in the hospital management of the disease. Relapses are not frequent after ten days of normal temperature and are rare after two weeks. There is no certain way of foretelling the occurrence of a relapse, but persistent enlargement of the spleen after defervescence is presumptive evidence, for it was present in no less than seventy eight per cent of the cases in which it was sought. There is nothing characteristic in the features of a relapse, save that it is usually very mild and seldom leads to a fatal outcome, except as a result of the development of a complication, and complications are rare in relapses. Relapses are more frequent in children than in adults.

## THERAPEUTIC PROGRESS

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**Hexal, a New Antiseptic Sedative for the Bladder.**—Boss (*Deutsche Med. Wochenschrift*, Sept. 5, 1912) conceived the idea of combining salicylic acid with urotropin, the result being a product known as hexal. The indications for the use of the product are: Acute and chronic bladder inflammations of whatever origin. Gonorrheal infections of the posterior urethra to prevent bladder infections. Uric acid diathesis and deposits in the kidney and bladder. Advantages are: Strong sedative action due to sulphosalicylic acid. Energetic bactericidal action due to formaldehyde and the sulphosalicylic acid content. Both are antiseptics which enable the urine to prevent the development of the most resistant bacteria. Marked astringent action due to the union of the sulphogroup with the salicylic acid molecule. The sulphosalicylic acid precipitates protein and contracts the vessels of the hyperemic mucous membrane of the bladder. Besides the administration of hexal, the usual hygienic measures should be observed, such as warm baths, compresses, diet and rest.

Hexal is odorless with a lemon-like taste, and is easy to administer without an adjuvant. Boss observed no unpleasant byeffects from its prolonged use. The dose is one gram, either in powder or tablet dissolved in water, three or four times daily.

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**Excretion of Formaldehyde by the Kidneys.**—L'Esperance (*Boston Medical and Surgical Journal*, October 24, 1912) states the following conclusions: Formaldehyde appears in the urine in only fifty two per cent. of cases where urotropin has been administered. The reaction of the urine is of no importance. Alkalies taken with or in combination with urotropin have no effect on excretion. The duration of the excretion of formaldehyde is about from four to six hours. An increase of dose does not affect excretion in negative urines. Urotropin produces no symptoms in an average dose. The urine of all patients while taking urotropin should be tested for formaldehyde, while patients not excreting formaldehyde are symptomless, regardless of the amount of urotropin taken.

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**The Diuretic Action of Digitalis.**—Martinet (*Presse Medicale*, October 2, 1912) declares that the diuresis induced by digitalis is the result both of a stimulating action on the heart, manifested in an increase of the pulse pressure—the difference between the systolic and diastolic pressures—and a vasodilator action on the kidneys, most clearly indicated by a diminution in the diastolic pressure. The drug is thus both indirectly and directly diuretic. Digitalis tends to increase the viscosity of the blood; this after resorption of the edematous fluid tends automatically to check the diuresis, which might otherwise become excessive.

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**Veronal and Phenacetin.**—Von Noorden (*Therapie der Gegenwart*) states that he has found the combination of veronal five grains, phenacetin two and a half grains, an exceptionally useful combination for insomnia. The addition of the phenacetin to the veronal not only doubles the hypnotic effect of the veronal, but prevents unpleasant after effects of the veronal, such as headache, tired feeling, or confusion on the following day. This combination with codein phosphate one half grain added he found valuable where the sleeplessness was due to or the result of irritating cough.



**Vaseline as a Laxative.**—One of the best remedies for the production of the daily evacuation of the bowels, says Hertz (*Western Medical Review*), is liquid vaseline, which is nonirritant. It traverses the entire intestine without decomposition or absorption, and is particularly useful in the constipation of diabetics; also in painful constipation the stools are expelled with less difficulty than ordinarily. A teaspoonful to a dessertspoonful may be taken two or three times a day, at meal time. While it occasionally causes nausea, on the whole it is preferable to agar-agar, which is more apt to produce gastric indigestion.

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**Pantopon to Control Pain in Labor.**—This product, writes Morley, in *The Physician and Surgeon*, is a preparation containing about 90 per cent. of all the alkaloids of opium, which can be administered whenever opium or morphine are indicated, having all of their therapeutic properties without the unpleasant and dangerous after effects. In obstetrics, it tends to lessen the sensitiveness of the uterine contractions without changing the force and duration of the pains, and that it is when thus administered harmless to the child. He does not indicate the proper time or period for its use.

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**Crude Coal Tar in the Treatment of Skin Affections.**—Müller (*Deutsche Med. Wochenschrift*, June 6, 1912) reports his experience with crude coal tar in the Breslau skin clinic. The tar was painted in a thin layer on various sorts of lesions, allowed to dry and covered with a muslin bandage. When well borne the application was repeated in twenty four hours, and again two or three days later, according to indications. Removal of the tar, when desired, was effected by means of a dressing of zinc paste or ichthyol zinc paste.

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**Effects of Quinine and Salicylates on the Middle Ear.**—Rister (*Roussky Vrach*, July 28, 1912) reports experiments on the toxic effects of quinine and sodium salicylate, and states that the effect is not limited to the nerves, but that quinine acts as a systemic poison, producing degenerative changes in the tissues. Sodium salicylate acts in a similar manner but in milder degree.

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**Antiscarlatinal Serum.**—Zdravomysloff (*Roussky Vrach*, June 9, 1912) immunized horses against streptococci by means of streptococcic toxins and live streptococci. The serum obtained after four months' immunization was employed in severe cases of scarlet fever. Six out of the seven patients showed marked improvement after the administration of the antitoxine.

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**Radium Emanation and the Essence of the Spa.**—Lazarus (*Medizinische Klinik*, July 14, 1912) opposes the prevalent opinion that radium emanation plays an important rôle in the beneficial effect produced by spas. There is no doubt that this emanation is effective, but a good many other items, chemical as well as psychological, are to be considered.

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**Necrosis on the Hand from Dressing with Solution of Aluminum Acetate.**—Esau (*Medizinische Klinik*, July 14, 1912) reports three cases in which dressings with solution of aluminum acetate produced necrosis of the injured hand. The effect of the dressing was similar to the burns seen from carbolic acid.

## AT YOUR LEISURE

### THE COLONEL'S CHRISTMAS

Three days after the last Christmas day I called during the evening upon my friend Colonel Lindsay at his cozy apartment in New York City to inquire concerning his visit for over Christmas with some country friends. I had been told when I made inquiry by telephone where he had gone and that he was expected to return on the Monday following. It was, however, Wednesday before I could reach him by telephone, and then was given a cordial invitation to come down after dinner if I could not join him before. I found him in his usual good health and spirits.

The Colonel lives alone in an apartment, his only child or relative, in fact, a son, living in another State. Upon the occasion of my visit referred to I was cordially received as always, and after mutual best wishes I was invited to light one of his cigars and take an easy chair. "Well, Colonel, did you spend a pleasant Christmas?" I inquired. He did not reply for several minutes, seemingly lost in contemplating the events of the last few days.

"You must know," he finally replied, "that Christmas is an unknown quantity, for one can never have it as planned. At least that has been my experience. Something is sure to happen that is not expected. For instance, just the number of guests planned for do not arrive; especially if the celebration takes place in the country. There is either some one missing or some one arrives without notice, one, perhaps, who has sent regrets. This latter contingency is always a pleasant surprise, while in the former case it is frequently a sore disappointment. There is the state of the weather to take into account, always uncertain at this time of the year, sickness intervenes or some unforeseen circumstance arises that necessitates a change of plans at the last moment, to the dismay of the host and hostess.

"As it happened I was the only one of those invited from the city who went to Parker's country home this Christmas. You will remember that last Friday, the day before Christmas, was an ideal midwinter day. The air was bracing; sky bright, in fact it was a perfect day. I took an early train from the city at the express commands of Mrs. Parker, was met at the station and driven to their home, some five miles distant, enjoying the ride immensely. My welcome was hearty and cordial. Parker himself showed me to my room, remarking that the weather would have been perfect for the season if we could only have had some snow, repeating the old saying that a 'green Christmas makes a fat churchyard,' or something to that effect. I was pleased to agree with him, and asked if they had yet had any sleighing. He replied that much to his disappointment they had not. He had his wish quickly gratified, however, for before dinner was over it was snowing hard, and it continued to snow all night. The wind soon began to blow and rapidly increased to a gale. We all remained indoors, the party consisting of Mr. and Mrs. Parker, their son, a middle aged lady and her niece and myself. About eight o'clock a young man from the city, visiting relatives nearby, drove over to spend the evening. He reported it snowing hard, a fact I had observed by repeated visits to the windows. The young man's horse was housed while we proceeded to

enjoy ourselves until about ten thirty, when the young man visitor proposed to depart for his friend's home.

"Word was brought in that the snow had drifted so that it would be difficult to make the trip in the buggy in which he had come, and the suggestion made that he leave his buggy, take a saddle, and go home on horseback. This he objected to, saying that he would have no trouble, and so he departed.

"The window blinds were pulled close, a toddy made and drank, while we all prepared to listen to the reading of Whittier's 'Snow-bound' by the middle-aged lady, when shouts for help were heard down the road. Parker and his man slipped on their top coats and rubber boots and went to the rescue. Presently they returned with the young man, having found that his horse had floundered into a bad drift, fallen, and in an endeavor to return to the stable which he had just left, broken a shaft of his buggy. He was unharnessed, the buggy left in the road, and the horse again put in the stable, while the much chagrined young man, covered with snow, without a hat, was brought into the house, willing to remain overnight. This rather disturbed the party, and soon after all retired. In the meantime it was still snowing hard and blowing furiously.

"I found that my room faced the wind, while just outside were several large shade trees. Raising the window blind, I discovered it to be bright moonlight, and stood for some time watching the agitated trees, listening to the roar and whistling of the wind, which was intense. Presently I retired, but not to sleep, for the noises were sufficiently strange and varied to chill one's blood. I could not remain in bed, so dressed and sat before the fire. Really I think all the fiends of hell were loosed and reveling in scandalous frolics around my room. Daylight found me rather upset, while a look out of doors convinced me that I would not be able to drive to the train on Sunday night in order to reach the city, so that I might keep an important engagement made for Monday morning, which fear I communicated to Parker.

"Saturday, Saturday night, and Sunday we remained indoors. Not a vehicle was seen, and it was plain that it would be several days before the road could be made passable. Sunday night Parker made what he called an Old Salem punch, of which we partook rather freely. Monday morning I remained mostly in my room or in Parker's den, the ladies seldom being seen. Some of the punch being in evidence, we got at it again on Monday.

"During the morning I found a monthly magazine, which I took with me to my room. In it I found a story of Old Salem, Mass., a story of pre-colonial days, in which a young woman was bewitched by an old woman shortly before being hanged. The young woman would slip out of the house at night, take the form of a huge wolf, which terrified the neighborhood during the night; returning to her home and proper form during the early morning. The wolf attacked a farmer one evening, and was struck in the back of the neck with a hand axe by one who came to the rescue just in time. Later it was found that the young woman had a fearful wound on the back of her neck, from which she died.

"I told Parker that what with the story, his Old Salem punch, and the storm I was seeing and hearing things and that I must get away from it; that I must get home that night. He declared it

impossible to get through the roads, but I was insistent, threatening to walk if he did not take or send me. It was finally decided to send the son with me in a sleigh. Fortunately he took a pair of wire cutters, with which he cut the fences, so that we might drive over the fields when deep drifts were encountered in the road. I was dumped into a snow drift once, but after traveling at least three times the distance it would have been by road, we finally reached the station. I have not yet heard whether the young man reached home after leaving me at the depot or not.

"Well, I took the train for the city when it arrived, which was soon after I reached the depot, and secured a seat next to the window. We had not gone far before I noted out of the window a specter shape following the train. It would stop when the train did and disappear, but was there outside of my window when the train again proceeded. The apparition took the form of what has been described as a ghost. It was shaped like a woman dressed in a long flowing white dress, with perfectly white hair streaming down on either side of her face and falling to her waist. At one of the stations a fat German woman with four small children got into the car, which was crowded. She finally found room in various parts of the coach for the children and seated herself beside me, this being the only remaining vacant seat in the car. She was nervous, however, about the children, and kept looking to the front and rear of the car to see that they were all right. This fidgeting got on my nerves somewhat, so in a spirit of deviltry, I suppose, I suddenly turned towards her, and speaking in a loud whisper said, 'Look at that ghost following the train,' pointing out of the window. She turned suddenly, saw the figure, and giving one scream called out 'Mein Got, where is my childrens? Give me my childrens!'

"This caused an uproar; the conductor, whom I knew well, came to investigate, asked what was the matter. The woman between screams and calls for her children, pointing to me said: 'It is by this man; look, look from the window out.' The conductor looked at me and asked what it all meant. By this time there was great confusion in the car. I replied to the conductor's question:

"'She saw a ghost out the window following the train. Look, you can see it yourself.' He looked and exclaimed, 'What the devil is this?'

"I pointed to the opposite side of the car and replied, 'It is the reflection of that girl's white coat and fur boa which hangs by the window.'

"Partial peace was restored. The train slowed up for a station, the brakeman called the name, and the woman with her four children got out.

"When the train was again in motion a number of passengers came for a look at the ghost which I had been seeing ever since I entered the car.

"I afterwards told the conductor of the witch wolf and the Old Salem punch, and said I had no doubt but that the apparition was the ghost of one of the witches burned at Salem, Mass., in the early days of Massachusetts history.

"So while my Christmas began under rather unfortunate circumstances, it wound up satisfactorily, after all. I had a bully good time."



## MISCELLANY

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### EARLY TRAINING OF MOTHERS IN THE CARE OF BABIES

In the *New York Medical Journal*, October 5, 1912, Importance of the Early Training of Mothers in the Care of Babies, By Sigmund A. Agatston, M.D., New York, we find: the proper care of infants should be taught in a brief and concise manner. The following points must be strongly impressed:

1. Daily bath.
2. Plenty of fresh air.
3. Feeding at regular intervals of not less than three to four hours; nothing except water between feedings. When the baby cries it does not always mean hunger.
4. Positively nothing beside milk during the first six months.
5. After the sixth month, orange juice, once daily an hour before a milk feeding; broth or beef juice, barley water, used in diluting milk in bottle fed babies, crust of bread and zwieback, when teeth are present, given after breast or milk feeding.
6. When the baby is bottle fed, use raw whole milk (certified if possible). Parboil the milk during hot summer months. During the second month use from twelve to fourteen ounces of milk to ten ounces of water, divided into seven bottles. Add two ounces of milk for each succeeding month, so that during the third month from fourteen to sixteen ounces of milk to ten ounces of water are given; during the fourth month, from sixteen to eighteen ounces of milk to ten ounces of water, etc. After the third month relinquish the night feeding, and divide the whole quantity into six bottles. Always add a flat tablespoonful of milk sugar to each ten ounces of the mixture. Fill all the bottles for the day in the morning, and keep them on ice until used. Before using, immerse the bottle in hot water, until the milk is sufficiently warmed. Babies do very well on these mixtures, and their simplicity makes them easy to follow out. The quantities correspond approximately to caloric requirement.
7. During the second year children may have milk, eggs, orange juice, prunes, apple sauce, baked potato, oatmeal gruel (cooked four hours), farina, barley, bread, soup and beef juice, also small quantities of meat. Feed every four or five hours.
8. No raw fruit of any kind during the first two years.
9. Do not use pacifiers.
10. When baby does not seem well do not try home remedies, but consult a physician. If you treat without knowing the cause, the baby will probably get worse.



These simple directions should be carefully explained to the mother from a printed card, which should be posted in the home for constant reference. These cards should be procurable in different languages, as otherwise they would be useless to many foreigners.

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#### NEOSALVARSAN

Iversen in *Roussky Vrtch*, April 28, 1912, Abst. in N. Y. *Med. Jour.*, experimented with neosalvarsan sent him by Ehrlich, and found it superior to the older preparation. It is more readily soluble in water, less toxic, and less irritating, consequently it may be employed in larger doses. For intravenous injection 0.9 gram neosalvarsan was dissolved in 200 c.c. of sterile, freshly distilled water. For intramuscular injection the same quantity of the drug was dissolved in 20 to 30 c.c. of distilled water and 10 to 15 c.c. injected into the gluteal muscles on each side. The pain is insignificant, but can be prevented by a previous injection of a one or two per cent solution of novocain. The injections were repeated every day for four days, using from 0.75 to 1.2 gram of neosalvarsan in man and 0.6 to 0.75 gram in woman for each dose. The results obtained were splendid, even superior to those following injections of salvarsan. The author sees in this new preparation an advance in the method of rapid sterilization of the organism.

*Neosalvarsan in Malaria.*—Iversen and Fushinsky in *Roussky Vrtch*, April 28, 1912, employed neosalvarsan in the treatment of five cases of tertiary malaria, using from 0.6 to 0.75 gram for a single intravenous injection. In each case the attack was aborted and the plasmodia disappeared from the peripheral blood. There is probably, a return of the plasmodia on the tenth day, and a repetition of the injection is suggested ten days later. This treatment is superior to quinine, because of its brief duration, only two injections being required.

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#### INFANT FEEDING

Auspach in the *Therapeutic Gazette*, September, 1912, states that it is a mistake for the mother to think that bottle feeding is much less troublesome than breast feeding. If the proper care is taken in the preparation of the milk mixture, in its refrigeration and subsequent heating before use, and in the sterilization of the bottles as well as of the nipples, it is just as much trouble and considerably more expensive. If this is explained to the mother, very few will prefer bottle nursing to breast nursing from the standpoint of labor involved.

Although a very large percentage of infant mortality may be traced to improper feeding during the first year of life, he does not for one moment believe that this mortality would occur in bottle fed infants if the feedings were given in the approved form.

It goes without saying that if the cow's milk is impure, if the mixture is improperly selected, if the bottles and nipples are ill kept, the danger is great; but when good milk is obtained, when the proper formula is used, and when all the care that is required is taken, there will be few fatalities in the bottle fed infant. He is further convinced that if after a conscientious trial of three or four weeks the breast fed baby does not gain, it should be put on the bottle.

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#### NERVOUSNESS IN CHILDREN

In the discussion of a paper upon this subject, read before the Indiana State Medical Association, October 10, 1912, by C. F. Neu at Indianapolis and reported in the *J. A. M. A.*, November 16, 1912, Dr. A. E. Sterne stated that there are two classes of nervous children—those who have something the matter with them, and those suffering from too much parents. Each child is a law unto itself; it must be studied individually. Nervousness in children is due almost always—unless they are sick—to lack of self control, and that can and must be taught the child. Insane people are sick people, they should be treated as sick and should be examined as carefully as other sick persons, when it will be found in a great many instances that the mental derangement is the result of internal illness. When a person becomes unmanageable in the home or hospital they should be sent to a detention or observation hospital.

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#### USE AND ABUSE OF THYROID EXTRACT IN OBESITY

H. D. Jump, at a meeting of the Penn. State Medical Association, September 23, 1912, reported in *J. A. M. A.*, November 16, 1912, stated in his paper on the above subject that there are two varieties of obesity, exogenous and endogenous. The latter is due to decreased activity of the thyroid, and hence thyroid treatment gives the best results. When obesity is associated with chronic nephritis, the thyroid treatment is of great value. Evil effects result from overdosage and uncertainty of dosage. The dose should be increased gradually. If overdosage is persisted in, death may result from heart failure. Thyroid must be classed as a dangerous remedy, not to be used by a patient who is not under observation by a physician.











